

Original Article

EVALUATING THE IMPACT OF ORGANIC FARMING POLICIES ON AGRICULTURE IN NIGERIA

¹Adaobi Chinyere Nwosu, ²Bolaji Adebayo Olayemi, ³Samuel Oluwatobi and ⁴Chukwuemeka Victor Eze

¹Department of Operations West Africa
(Produce Supply Chain and Marketing)
TechnoServe (Business Solution to
Poverty)

²Department of Agronomy, University of
Ilorin

³Department of Agricultural Economics
Ladoke Akintola University of
Technology, Ogbomoso, Nigeria

⁴University of Nigeria, Nsukka, Nigeria.
DOI: <https://doi.org/10.5281/zenodo.13837015>

This comprehensive systematic review delves into the pivotal role of policy frameworks in catalyzing the adoption and expansion of organic farming in Nigeria. Despite the burgeoning global recognition of organic agriculture's benefits for environmental sustainability and food security, Nigeria's adoption rates remain modest due to formidable obstacles such as exorbitant certification costs, restricted market access, and a pervasive lack of awareness and technical expertise among farmers. This study critically examines the efficacy of existing policies, encompassing subsidies, certification schemes, and educational initiatives, and identifies strategic avenues for enhancement. It advocates for streamlined certification processes, the development of robust local and international markets for organic products, substantial investment in education and extension services, and enhanced financial support mechanisms. By addressing these challenges and leveraging identified opportunities, Nigeria can elevate its organic farming sector, paving the way for a sustainable, resilient, and economically viable agricultural future that aligns with global best practices and supports a healthier environment and economy. This review not only underscores the current limitations but also illuminates a path forward for transforming Nigeria's agricultural landscape through comprehensive policy reform and innovation.

Keywords: Organic Farming, Policy Interventions, Sustainable Agriculture, Certification Costs, Financial Support, Nigeria.

Introduction

Organic farming, a method of agricultural production that eschews synthetic inputs in favor of natural processes, is increasingly recognized for its potential to enhance food security, improve environmental health, and support sustainable development (IFOAM, 2022). In Nigeria, a country grappling with food insecurity, environmental degradation, and economic challenges, organic farming presents a viable pathway to address these issues. However, the promotion and adoption of organic farming in Nigeria are significantly influenced by the policies

Original Article

and regulatory frameworks put in place by the government and relevant stakeholders. Organic farming practices yield a wide range of environmental advantages. These include the reduction of greenhouse gas emissions, the prevention of water pollution, the mitigation of soil erosion, and the promotion of human health. Unlike conventional agriculture, organic methods emphasize reducing carbon footprints, preserving and enhancing soil health, and restoring natural ecosystems without leaving harmful pesticide residues (Familusi *et al.*, 2023; Squalli & Adamkiewicz, 2023). Such a shift is crucial for achieving sustainable and environmentally friendly agricultural production.

Over the past decade, there has been a growing interest in organic agriculture in Nigeria, driven by both local and global trends towards sustainable food systems. Policies aimed at promoting organic farming have been introduced to support this shift, including incentives for organic certification, subsidies for organic inputs, and the establishment of organic research and extension services (Fakayode *et al.*, 2021). These policies are designed to create an enabling environment for farmers to transition from conventional to organic practices, thereby enhancing the sustainability and resilience of the agricultural sector. The core principles implicit in this definition of organic agriculture include promoting biodiversity, recycling, adopting locally adapted farming systems, and prioritizing human and environmental health. Organic agriculture aims to reduce or eliminate the use of external inputs and mitigate risks to the environment, human health, and animal welfare. These principles and objectives underscore the uniqueness of organic farming in its commitment to sustainability and ecological responsibility. To advance green economy initiatives within the global agricultural sector, it is essential to advocate for the extensive adoption of organic farming practices (Squalli & Adamkiewicz, 2023). Organic farming aligns with sustainability principles, environmental stewardship, and the reduction of ecological footprints, making it a crucial element in fostering green economies worldwide. By supporting organic agriculture, countries can mitigate the adverse effects of conventional farming methods, promote healthier ecosystems, enhance biodiversity, and ensure the responsible use of natural resources, thereby contributing to a greener and more sustainable agricultural future.

Promoting organic farming can be achieved by encouraging farmers to adopt organic food production methods (Röös *et al.*, 2018). However, beyond merely embracing organic agriculture, it is crucial to prioritize the extensification of these practices (Kini *et al.*, 2020). By allocating more land to organic farming, the ecological benefits can be extended, thereby supporting sustainable agriculture and mitigating the environmental degradation often linked to conventional farming. In the context of agriculture, "extensification" can refer to increasing the amount of land dedicated to organic farming (Pretty *et al.*, 2006). However, it generally involves implementing various practices and strategies that aim to enhance the productivity and efficiency of agricultural systems while minimizing their negative environmental impacts (Mahon *et al.*, 2018). This can include crop rotation, organic fertilization, pest management, and soil conservation to maximize the use of existing agricultural land (Mahon *et al.*, 2018). For this study, we define extensification as the increase in farmland under organic cultivation and the number of organic practices employed, such as crop rotation, organic fertilization, pest management, and soil conservation.

Organic certification and government subsidies are crucial mechanisms that can significantly boost the expansion of organic farming among Nigerian farmers (Ume *et al.*, 2023). Organic certification acts as a guarantee of quality and adherence to organic farming principles, assuring consumers of the authenticity of organic products (Bui &

Original Article

Nguyen, 2021). Obtaining certification enables farmers to access premium markets and secure higher prices for their produce, creating a substantial economic incentive for expanding organic practices. While considerable analytical work and research have been devoted to promoting organic agriculture and sustainable farming in the global South, the literature reveals a focus on diverse aspects. Chukwuma *et al.* (2016) explored the socio-economic impacts of organic farming on rural livelihoods; Djokoto *et al.* (2016) examined the environmental benefits of organic agriculture in mitigating soil degradation; Emeanaa *et al.* (2017) investigated the challenges and opportunities in transitioning to organic farming practices; the FAO (2019) provided an overview of policy frameworks supporting organic agriculture in developing countries; Priya and Singh (2023) assessed consumer perceptions and preferences for organic products; Brito *et al.* (2022) analyzed the role of organic farming in biodiversity conservation; the Organic Farming Research Foundation (2022) focused on the technical aspects of organic farming practices; and Priya and Singh (2023) studied the market dynamics and potential for organic agriculture in the global South. Despite these valuable contributions, a significant gap remains in the literature regarding comprehensive investigations into the economic incentives and government support systems, including certifications and subsidies that are vital for scaling up organic agriculture in the global South.

In developed economies, the significance of certifications in boosting organic farming is well established, with considerable research examining the impact of government subsidies on organic production. However, the existing reviews present mixed evidence. For example, a study by Lohr and Park (2010) found that certified organic farmers in the United States achieved higher returns per acre compared to their conventional counterparts. Similarly, a comprehensive meta-analysis by Willer *et al.* (2012) on global organic agriculture trends highlighted the role of certification in improving market opportunities for farmers. Verburg *et al.* (2022) examined organic dairy farming in the Netherlands and found that government subsidies enhanced the economic viability of organic farming by providing financial support for certification fees, organic inputs, and infrastructure development. According to their findings, these subsidies reduce the financial barriers farmers may encounter when considering expansion. Additionally, government policies promoting organic agriculture can facilitate knowledge-sharing and capacity-building initiatives, supporting the growth of organic farming communities.

Unlike the extensive literature on certifications and the increase in organic farming adoption in the global North, there is limited research on encouraging full-scale extensification of organic farming among growers in developing nations. We found only three relevant studies (Janssen & Hamm, 2012; Rizzo, Migliore, & Schifani, 2023; Familusi, Edriss, & Phiri, 2023). Janssen and Hamm (2012) noted that certifications act as catalysts for sustainability improvements in value chains in developing economies by ensuring brand integrity, enhancing stakeholder satisfaction, promoting competitive certified supply growth, and developing dynamic organizational capabilities. Rizzo, Migliore, and Schifani (2023) concluded that certifications benefit producers and contribute to a more sustainable and environmentally responsible global value chain. Familusi, Edriss, and Phiri (2023) emphasized that certification policies aimed at shifting agriculture to organic methods and promoting extensification should enhance farmers' welfare by addressing economic, social, and environmental aspects. These policies provide economic support, such as subsidies and fair pricing mechanisms, to reduce financial risks during the extensification process. However, the authors pointed out that achieving these goals is challenging due to the diverse needs and challenges faced by farmers, requiring a comprehensive approach.

Original Article

Despite the potential benefits, the impact of these policies on the adoption and success of organic farming in Nigeria remains under-explored. There is a need for comprehensive analysis to understand how these policies are shaping the organic farming landscape and to identify the challenges and opportunities they present for farmers and stakeholders in the sector (Ogunsumi & Adeola, 2020). This research aims to fill this gap by analyzing the impact of policies promoting organic agriculture in Nigeria, evaluating their effectiveness, and proposing recommendations for policy improvements to foster the growth of the organic farming sector. The study focuses on examining the current organic farming policies in Nigeria, assessing their impact on agricultural practices and outcomes, and identifying barriers to effective policy implementation. By doing so, it seeks to provide insights into how organic farming can be better supported through policy interventions and to contribute to the broader discourse on sustainable agricultural development in Nigeria and beyond.

2. Methodology

The study adopts a systematic review approach, analyzing peer-reviewed articles, policy documents, and reports relevant to organic farming policies in Nigeria. The literature search was conducted using databases such as Google Scholar, PubMed, and Scopus, with keywords including “organic farming policies Nigeria,” “impact of organic agriculture policies,” and “organic farming adoption.” Studies were included based on relevance, publication date (primarily focusing on the last two decades), and contribution to the understanding of policy impacts on organic farming in Nigeria.

3. Literature Review

3.1 Global Context of Organic Farming Policies

Globally, the promotion of organic farming is underpinned by a range of policy measures designed to encourage sustainable agricultural practices. These measures typically include certification schemes, subsidies, and educational programs aimed at fostering the adoption and expansion of organic farming (Willer *et al.*, 2022). Certification schemes, such as those provided by the International Federation of Organic Agriculture Movements (IFOAM), play a crucial role in validating the authenticity of organic products, thereby building consumer trust and expanding market opportunities for organic producers (IFOAM, 2022).

In developed countries, policies aimed at promoting organic farming have led to significant positive outcomes. Financial incentives, such as subsidies and grants, have played a crucial role in making organic farming a more attractive and viable option for farmers by helping to offset the higher costs associated with organic practices compared to conventional farming methods (Lohr & Park, 2010). These higher costs often include expenses related to organic certification, organic seeds, and the adoption of labor-intensive farming practices that eschew synthetic inputs. In the European Union, the Common Agricultural Policy (CAP) has been instrumental in supporting organic farming through various subsidies and grants (European Commission, 2020). The CAP provides financial assistance to farmers who adhere to organic practices, thus facilitating the conversion to and maintenance of organic farms. These subsidies cover a range of costs, including those related to certification, organic inputs, and infrastructure improvements. The support from the CAP has resulted in a significant increase in the adoption of organic farming across EU member states. According to the European Commission (2020), the area of organically farmed land in the EU has been steadily increasing, driven by these policy measures that make organic farming financially viable for a broader range of farmers. In addition to direct financial support, the EU also offers additional incentives for organic farmers, such as agrienvironmental schemes that reward farmers for

Original Article

providing public goods like biodiversity preservation, soil health improvement, and water conservation (Lampkin *et al.*, 2015). These schemes not only promote the adoption of organic farming but also encourage practices that have broader environmental benefits, aligning with the EU's goals for sustainable agriculture and environmental stewardship (Willer & Lernoud, 2020).

Similarly, in the United States, the Organic Certification Cost Share Program (OCCSP) is a critical policy tool that helps mitigate the financial barriers to organic certification. This program reimburses up to 75% of the certification costs, up to a maximum of \$750 per certification scope (USDA, 2021). The support provided by the OCCSP has been essential in lowering the financial barriers for small and medium-sized farms, enabling more farmers to transition to and maintain organic practices. According to the USDA (2021), this program has contributed to the steady growth of organic farming in the U.S., with a notable increase in both the number of organic farms and the acreage dedicated to organic production. Beyond financial subsidies, developed countries also invest in research and development to advance organic farming techniques and improve yields. For example, the United States has established the Organic Agriculture Research and Extension Initiative (OREI), which funds research projects that aim to improve the competitiveness and viability of organic agriculture (National Institute of Food and Agriculture, 2020). This initiative supports the development of new organic farming methods, pest and disease management strategies, and soil health improvement techniques, further enhancing the sustainability and productivity of organic farms. Moreover, government policies in developed countries often include marketing support for organic products. For instance, in Denmark, the government has implemented a comprehensive marketing strategy that includes promotion campaigns, organic labeling, and support for organic product exportation (European Environment Agency, 2019). Such measures help to increase consumer awareness and demand for organic products, thereby creating a stable market for organic farmers and further incentivizing the adoption of organic practices.

Educational programs are essential in promoting organic farming by providing critical knowledge and skills necessary for transitioning to and maintaining organic practices. These programs, often funded or supported by government agencies and non-governmental organizations (NGOs), offer various forms of support, including technical training, knowledge dissemination, and advisory services. The success of these programs in countries like Germany and Denmark highlights their pivotal role in the effective implementation and scaling of organic farming systems (Lampkin *et al.*, 2015). In Germany, the government plays a proactive role in supporting organic farming through educational programs. The German Federal Ministry of Food and Agriculture (BMEL) has established numerous initiatives that provide farmers with training on organic farming techniques, soil management, pest control, and crop rotation (BMEL, 2021). These initiatives include workshops, field demonstrations, and the dissemination of educational materials designed to equip farmers with the practical knowledge needed for organic farming. The support extends to creating networks of organic farmers and experts who share experiences and solutions to common challenges, thus fostering a community of practice that enhances collective learning (Willer & Lernoud, 2020). Similarly, Denmark has developed a robust framework for promoting organic agriculture through education and advisory services. The Danish Agriculture and Food Council runs the Organic Farming Knowledge Center, which offers training and consultancy services to farmers. This center focuses on areas such as organic crop production, livestock management, and market development (Økologisk Landsforening, 2019). The comprehensive nature of these services ensures that farmers receive

Original Article

tailored advice and support that addresses their specific needs and challenges, making the transition to organic farming more manageable and effective.

These educational efforts are not confined to classroom settings but often include hands-on learning experiences. For instance, farm visits and practical training sessions allow farmers to observe and learn from established organic farms. Such experiential learning is crucial for understanding the complexities of organic farming and for building the confidence to implement new practices on their own farms (European Environment Agency, 2019). Additionally, these programs often facilitate peer-to-peer learning, where farmers can share their experiences and best practices, further enriching the learning process (Soil Association, 2020). Moreover, educational programs are tailored to address the local context, ensuring that the training provided is relevant to the specific environmental, economic, and social conditions of the region. In Southern Europe, for example, educational initiatives focus on water management in organic farming due to the region's vulnerability to drought (Padel & Niggli, 2008). In contrast, programs in Northern Europe might emphasize soil health and biodiversity conservation, reflecting the different agricultural challenges and priorities of the region (FiBL, 2020). In addition to government and NGO initiatives, educational institutions play a vital role in promoting organic farming. Universities and agricultural colleges offer specialized courses and research programs that focus on organic agriculture, contributing to the development of new knowledge and the training of future organic farmers and researchers (IFOAM, 2022). These institutions often collaborate with farmers, policymakers, and industry stakeholders to ensure that their educational offerings are aligned with the needs of the organic farming sector. Furthermore, international organizations like the Food and Agriculture Organization (FAO) and the International Federation of Organic Agriculture Movements (IFOAM) contribute to the global dissemination of organic farming knowledge. They provide training programs, technical manuals, and online courses that are accessible to farmers worldwide, thus supporting the global expansion of organic agriculture (FAO, 2021; IFOAM, 2022). These resources help farmers understand organic certification requirements, market access strategies, and sustainable farming practices, facilitating the global growth of the organic farming movement.

The effectiveness of organic farming policies in developed economies underscores their potential to offer substantial benefits for developing countries, where agriculture remains a critical sector yet often relies on traditional and less intensive practices. These developed countries have successfully used a range of policy tools, such as subsidies, educational programs, and certification schemes, to foster the growth of organic farming. Adopting similar measures in developing contexts like Nigeria could be transformative by helping to overcome significant barriers related to finance, education, and market access (Willer & Lernoud, 2021). In developed countries, subsidies and financial incentives have been pivotal in promoting organic farming. For example, the European Union's Common Agricultural Policy (CAP) has provided substantial support through subsidies that encourage farmers to convert to and maintain organic farming practices. These subsidies have not only offset the higher initial costs of transitioning to organic farming but also provided ongoing support to ensure the sustainability of these practices (European Commission, 2020). Adopting a similar approach in Nigeria could help alleviate the financial burdens that Nigerian farmers face when considering a shift to organic farming, thus making it a more viable and attractive option (Parrott & Marsden, 2002). Educational programs have also played a crucial role in the success of organic farming policies in developed nations. In countries like Germany and Denmark, comprehensive educational and advisory services have equipped farmers with the necessary skills and

Original Article

knowledge to implement and sustain organic farming practices effectively (Lampkin *et al.*, 2015). By providing training on organic farming techniques, soil management, pest control, and marketing, these programs ensure that farmers are well-prepared to manage the complexities of organic agriculture. Implementing similar educational initiatives in Nigeria could significantly enhance the capacity of local farmers to adopt and sustain organic practices, leading to increased productivity and environmental benefits (Mikkelsen *et al.*, 2020).

Certification schemes have further facilitated the growth of organic farming by ensuring market access and consumer trust in organic products. In developed countries, certification provides a guarantee that products meet stringent organic standards, which is essential for gaining access to premium markets and securing higher prices for organic goods (Willer & Lernoud, 2021). The introduction of robust certification systems in Nigeria could help local farmers tap into both domestic and international markets for organic products, thereby improving their income and livelihood (IFOAM, 2021). This approach could also build consumer confidence in the authenticity of organic products, fostering a stronger market for organic goods within the country (Parrott & Marsden, 2002). In addition to direct policy measures, the success of organic farming in developed countries has been supported by broader policy frameworks that promote sustainable agriculture and environmental stewardship. For instance, policies that encourage research and development in organic farming, support for organic supply chains, and initiatives that foster collaboration among stakeholders have been crucial in advancing the sector (Lampkin *et al.*, 2015). By adopting a similar holistic approach, Nigeria can create a conducive environment for the growth of organic farming, ensuring that policies are aligned with broader goals of sustainability, food security, and rural development (Mikkelsen *et al.*, 2020). The adaptation of these proven strategies to local contexts in developing countries like Nigeria is critical for their success. While the fundamental principles of organic farming are universal, the specific practices and policy measures must be tailored to address local challenges and leverage local opportunities. This includes considering the socio-economic conditions of farmers, the climatic and ecological characteristics of the region, and the existing agricultural practices and traditions (Parrott & Marsden, 2002). By customizing these strategies, Nigeria can effectively promote sustainable agriculture, enhance food security, and contribute to the overall well-being of its population (IFOAM, 2021).

However, it is important to note that the success of such policies is contingent upon several factors, including the availability of institutional support, the capacity for policy implementation, and the existence of supportive market structures (Scialabba & Müller-Lindenlauf, 2010). For instance, while financial incentives and certification can drive adoption, they must be complemented by robust educational programs that equip farmers with the knowledge needed to manage organic systems effectively (Willer & Lernoud, 2020). Additionally, developing countries must ensure that there are adequate market opportunities for organic products, which often require significant investment in infrastructure and market development (Sahota, 2019).

3.2 Organic Farming in Nigeria: Current Status

In Nigeria, organic farming is still in its early stages, with limited adoption among farmers. Despite the country's rich agricultural potential and diverse ecosystems that could support a wide range of organic crops, organic farming remains underdeveloped (Fakayode *et al.*, 2021). Several policies and initiatives have been introduced to promote organic agriculture, but their impact has been constrained by numerous challenges. The Nigerian government and various stakeholders have taken significant steps to promote organic farming through a variety of policies and initiatives. One of the key areas of focus has been providing incentives for organic certification.

Original Article

Certification is crucial for accessing premium markets and ensuring that organic products meet the required standards. To encourage more farmers to obtain organic certification, the government has introduced financial incentives, such as subsidies, that help offset the high costs associated with the certification process. These incentives are designed to reduce the economic barriers to certification and make it more accessible to small and medium-sized farmers who might otherwise be excluded from the organic market (Ogunsumi & Adeola, 2020). In addition to certification incentives, the Nigerian government has also provided subsidies for organic inputs such as fertilizers, pest control products, and seeds. These subsidies help lower the initial costs of transitioning to organic farming, making it more affordable for farmers. By reducing the financial burden of purchasing organic inputs, these subsidies encourage more farmers to adopt organic practices. For instance, subsidies for organic fertilizers help improve soil health and fertility, leading to higher yields and better-quality produce (Ume *et al.*, 2023). This support is crucial in a country where access to quality agricultural inputs is often limited and expensive (Ogunsumi & Adeola, 2020).

Support for research and extension services has also been a key component of Nigeria's approach to promoting organic farming. The government has invested in research to develop and disseminate knowledge on organic farming practices. This research includes studies on the benefits of organic farming, best practices for organic production, and ways to overcome the challenges associated with organic farming in different regions of the country. By generating and sharing this knowledge, the government aims to equip farmers with the information they need to successfully transition to and maintain organic farming practices (FAO, 2019). Extension services play a crucial role in this process by providing on-the-ground support to farmers, offering training and advice on organic farming techniques, pest management, soil conservation, and other aspects of organic production (Emeanaa *et al.*, 2017). Efforts have also been made to align national agricultural policies with global trends that favor sustainable farming practices. This alignment reflects a growing recognition of the benefits of organic agriculture for food security, environmental sustainability, and rural development. By adopting international standards and best practices, Nigeria aims to integrate its agricultural sector into the global organic market, thereby improving market access for Nigerian farmers and enhancing the competitiveness of Nigerian organic products (FAO, 2019). For example, aligning with global trends allows Nigeria to tap into the growing demand for organic products in international markets, providing new opportunities for export and income generation (Familusi *et al.*, 2023).

Furthermore, the alignment of national policies with global trends supports the broader goals of sustainable development and climate change mitigation. Organic farming practices contribute to environmental sustainability by reducing the use of synthetic inputs, promoting biodiversity, and improving soil health. These practices also help mitigate climate change by sequestering carbon in the soil and reducing greenhouse gas emissions associated with conventional farming methods (Willer & Lernoud, 2021). By promoting organic farming, Nigeria is not only improving food security and rural livelihoods but also contributing to global efforts to combat climate change and protect the environment (Ogunsumi & Adeola, 2020).bThe implementation of these policies demonstrates a commitment to fostering a more sustainable and resilient agricultural sector in Nigeria. However, there are still challenges that need to be addressed to ensure the widespread adoption of organic farming practices. These include improving awareness and education about the benefits of organic farming, ensuring consistent and adequate funding for subsidies and research, and strengthening the capacity of extension services to support

Original Article

farmers. By addressing these challenges, Nigeria can further enhance its efforts to promote organic farming and achieve its goals of sustainable agriculture and rural development (Emeanaa *et al.*, 2017).

Despite the concerted efforts by the Nigerian government and other stakeholders to promote organic farming, the adoption of organic practices among Nigerian farmers remains disappointingly low. One of the most significant barriers to greater uptake is the pervasive lack of awareness and understanding of organic farming. Many Nigerian farmers are either unaware of the principles underlying organic agriculture or misunderstand its benefits. This lack of knowledge is particularly problematic in rural areas, where access to information and educational resources is limited (Ume *et al.*, 2023). The perception that conventional farming methods are more productive and easier to manage is widespread among farmers, leading them to continue using chemical fertilizers and pesticides instead of adopting organic alternatives (Ogunsumi & Adeola, 2020). The insufficient reach and effectiveness of educational and extension services exacerbate this knowledge gap. Although some initiatives are in place to provide farmers with information on organic practices, these efforts are often hampered by inadequate funding, limited infrastructure, and a lack of trained personnel (Emeanaa *et al.*, 2017). Extension services that could play a critical role in educating farmers about the benefits of organic farming and how to implement it effectively are frequently under-resourced and unable to meet the needs of farmers across the country (FAO, 2019). Without sufficient support, farmers are less likely to receive the guidance they need to transition to and maintain organic farming systems. Additionally, the lack of awareness extends beyond farmers to include consumers and other stakeholders in the agricultural value chain. Many Nigerian consumers are not familiar with organic products or the benefits of consuming them, which limits the market demand for organic produce and discourages farmers from making the switch to organic farming (Parrott & Marsden, 2002). This lack of market awareness and demand further reduces the economic incentives for farmers to adopt organic practices, creating a cycle of limited adoption and low consumer engagement.

Moreover, the economic context in Nigeria poses additional challenges to the adoption of organic farming. The initial costs of transitioning to organic farming can be prohibitive for many smallholder farmers, who often operate on tight margins and cannot afford to take financial risks (Ogunsumi & Adeola, 2020). Even with government subsidies and support for organic inputs, the perceived financial risks and uncertainties associated with organic farming deter many farmers from making the switch. The economic benefits of organic farming, such as access to premium markets and higher prices for organic produce, are not always immediately apparent or easily accessible to farmers who lack the necessary knowledge and resources to capitalize on these opportunities (Emeanaa *et al.*, 2017). The limited adoption of organic farming in Nigeria also reflects broader challenges within the agricultural sector, including issues related to infrastructure, policy coherence, and institutional support. Many farmers face difficulties accessing markets, obtaining credit, and securing the necessary inputs and equipment to practice organic farming (FAO, 2019). The fragmentation of agricultural policies and the lack of a cohesive strategy to promote organic farming further complicate efforts to increase the adoption of organic practices. Without a comprehensive approach that addresses these systemic issues, the potential for organic farming to contribute to sustainable agriculture and rural development in Nigeria will remain underutilized (Ume *et al.*, 2023). To address these challenges, it is crucial to enhance the reach and effectiveness of educational and extension services, increase awareness among consumers, and provide more substantial and targeted support to farmers. By improving access to information, training, and resources, the Nigerian government

Original Article

and other stakeholders can help bridge the knowledge gap and encourage more farmers to adopt organic farming practices. This will require a coordinated effort to strengthen the agricultural extension system, expand educational programs, and promote organic farming as a viable and sustainable option for farmers across Nigeria (Emeanaa *et al.*, 2017).

A significant barrier to the broader adoption of organic farming in Nigeria is the high cost and complexity of obtaining organic certification. Certification is essential for gaining access to premium markets and ensuring that agricultural products meet established organic standards. However, the certification process involves numerous expenses that can be prohibitive, especially for small-scale farmers who often operate with limited financial resources. The costs associated with certification typically include fees for initial and annual inspections, documentation, and compliance with organic standards, which can accumulate to a substantial financial burden for smallholder farmers (Familusi, Edriss, & Phiri, 2023). The high cost of certification creates a significant obstacle for farmers who might otherwise be interested in transitioning to organic farming. For many small-scale farmers, the upfront costs of obtaining certification are simply beyond their financial means. This economic barrier is particularly pronounced in developing countries like Nigeria, where farmers may lack access to affordable credit and financial services that could help them manage the costs associated with certification (Ogunsumi & Adeola, 2020). As a result, many farmers are unable to pursue organic certification, limiting their ability to enter certified organic markets and benefit from the higher prices typically commanded by organic products (FAO, 2019). In addition to the financial costs, the process of obtaining organic certification can be complex and challenging to navigate. The certification process often requires farmers to undergo rigorous inspections and comply with detailed documentation and record-keeping requirements. These administrative demands can be overwhelming for smallholder farmers who may lack the necessary knowledge, skills, and resources to successfully complete the certification process (Ogunsumi & Adeola, 2020). The complexity of the certification process can further deter farmers from pursuing organic certification, even if they are aware of the potential benefits of organic farming and are interested in adopting organic practices (Ume *et al.*, 2023).

The challenges associated with certification are compounded by the lack of adequate support and infrastructure to assist farmers in navigating the certification process. In many cases, there are insufficient extension services and advisory programs to provide farmers with the guidance and support they need to successfully obtain and maintain organic certification (Emeanaa *et al.*, 2017). Without this support, farmers are left to navigate the complex certification process on their own, which can be particularly difficult for those with limited education and experience in formal agricultural practices (FAO, 2019). Moreover, the lack of access to certified organic markets further exacerbates the economic barriers to certification. In many regions, there are limited opportunities for farmers to sell certified organic products, which reduces the financial incentives for farmers to invest in certification. Without access to premium markets that offer higher prices for certified organic products, farmers are less likely to see the economic benefits of certification and may be reluctant to incur the costs and effort associated with the certification process (Familusi *et al.*, 2023). This lack of market access creates a vicious cycle where farmers are unable to benefit from certification, which in turn limits their ability to invest in and expand their organic farming operations (Ogunsumi & Adeola, 2020). To address these challenges, it is crucial to develop more accessible and affordable certification systems that reduce the financial and administrative burdens on smallholder farmers. This could involve subsidizing certification costs, simplifying the certification process, and

Original Article

providing greater support through extension services and advisory programs. By making certification more attainable, more farmers could be encouraged to pursue organic farming and gain access to the benefits of certified organic markets. This, in turn, could help promote the growth of organic farming in Nigeria and contribute to the country's broader goals of sustainable agricultural development and improved food security (Emeanaa *et al.*, 2017). Furthermore, enhancing market access for certified organic products is essential to creating economic incentives for farmers to invest in certification. Developing robust supply chains, improving market infrastructure, and promoting consumer awareness of the benefits of organic products can help create more opportunities for farmers to sell their certified organic produce at higher prices. By creating a more supportive environment for certified organic farming, Nigeria can help more farmers overcome the barriers to certification and participate in the growing global market for organic products (FAO, 2019).

In addition to the challenges of certification, organic farmers in Nigeria face significant barriers to market access. The market for organic products in Nigeria is relatively underdeveloped, with limited infrastructure for the distribution and sale of organic goods. This situation is exacerbated by a lack of consumer awareness and demand for organic products, which makes it difficult for farmers to find reliable markets for their organic produce (Emeanaa *et al.*, 2017). Furthermore, the absence of well-established supply chains and marketing networks for organic products means that even those farmers who do produce organic goods often struggle to reach potential buyers, both domestically and internationally (FAO, 2019). Moreover, the financial and technical support available to organic farmers in Nigeria is insufficient to meet their needs. While some subsidies and incentives are available, they are often inadequate and inconsistently provided, making it difficult for farmers to rely on them for planning and investment purposes (Ogunsumi & Adeola, 2020). There is also a lack of access to credit and other financial services that could help farmers invest in the transition to organic farming and manage the higher costs associated with organic inputs and certification (Famulusi, Edriss, & Phiri, 2023). The technical support, in terms of research and extension services, is similarly lacking, leaving many farmers without the guidance and assistance they need to adopt and sustain organic farming practices effectively (Emeanaa *et al.*, 2017). Despite these challenges, there are promising developments that could help to advance organic farming in Nigeria. Increasing interest in sustainable agriculture and the growing recognition of the environmental and health benefits of organic farming are creating opportunities for policy makers and stakeholders to support the expansion of organic agriculture (FAO, 2019). Additionally, efforts to strengthen the capacity of agricultural extension services and improve access to education and training on organic farming could help to raise awareness and build the skills necessary for successful organic farming (Ogunsumi & Adeola, 2020).

3.3 Policy Measures and Their Impact

3.3.1 Certification and Market Access

Organic certification is pivotal in verifying the authenticity of organic products and facilitating access to premium markets. This certification acts as a hallmark of quality, ensuring that products meet established organic standards and are produced using sustainable practices, free from synthetic inputs (Bui & Nguyen, 2021). In Nigeria, certification is increasingly recognized as a crucial mechanism for expanding the organic farming sector. It provides farmers with economic incentives by enabling them to sell their products at higher prices in specialized organic markets, both locally and internationally. This, in turn, encourages more farmers to adopt organic practices, as they can potentially gain higher financial returns compared to conventional farming (Janssen &

Original Article

Hamm, 2012). However, the high cost of obtaining organic certification poses a significant barrier to many farmers in Nigeria. The certification process involves multiple steps, including application fees, inspection costs, and compliance with strict organic standards, which can be prohibitively expensive for smallholder farmers who often lack sufficient financial resources. These costs are compounded by the need for ongoing annual certification fees, making it difficult for many farmers to maintain their certification status over the long term (Famulusi *et al.*, 2023). The financial burden associated with certification not only limits the number of farmers who can access premium organic markets but also restricts the overall growth of the organic farming sector in Nigeria (FAO, 2019).

The issue of high certification costs is particularly acute in developing countries like Nigeria, where agricultural economies are predominantly small-scale and resource-constrained. Smallholder farmers, who constitute the majority of the agricultural workforce, often face significant financial challenges that impede their ability to invest in certification and other necessary inputs for organic farming. Without access to affordable certification, these farmers are unable to capitalize on the economic benefits of organic markets, such as higher prices and increased demand for organic products (Ogunsumi & Adeola, 2020). This situation underscores the need for targeted interventions, such as subsidies or financial assistance programs, to help lower the barriers to certification and support the expansion of organic farming (Ume *et al.*, 2023). In addition to the financial barriers, the complexity of the certification process also presents challenges for farmers. The certification requirements often involve extensive documentation and adherence to stringent production standards, which can be difficult for farmers with limited education and experience in formal agricultural systems to navigate. This complexity can discourage farmers from pursuing certification, even if they are interested in organic farming and aware of its potential benefits. As a result, many farmers continue to rely on conventional farming methods, missing out on the economic and environmental advantages of certified organic agriculture (Emeanaa *et al.*, 2017).

The lack of adequate support infrastructure further exacerbates the difficulties associated with certification. In many regions, there are insufficient extension services and advisory programs to assist farmers in understanding and meeting the requirements for organic certification. This gap in support services means that farmers often have to navigate the certification process on their own, which can be particularly challenging without access to reliable information and technical guidance (FAO, 2019). To address these challenges, it is essential to strengthen extension services and provide more comprehensive support to farmers seeking certification, including training programs, technical assistance, and financial support (Famulusi *et al.*, 2023). Enhancing market access for certified organic products is also critical to encouraging more farmers to pursue certification. Developing robust supply chains and improving market infrastructure can help create more opportunities for farmers to sell their certified organic products at higher prices. This, in turn, provides stronger economic incentives for farmers to invest in certification and adopt organic farming practices. By improving access to premium organic markets, Nigeria can help promote the growth of the organic farming sector and support the broader goals of sustainable agricultural development and improved food security (Ogunsumi & Adeola, 2020). To leverage the full potential of organic certification, it is crucial to implement policy measures that reduce the financial and administrative barriers to certification and enhance market access for organic products. This could involve subsidizing certification costs, simplifying the certification process, and providing greater support through extension services and advisory programs. By making certification more accessible and supporting the development of robust organic markets,

Original Article

Nigeria can help more farmers benefit from the economic and environmental advantages of organic farming and contribute to a more sustainable and resilient agricultural sector (Emeanaa *et al.*, 2017).

3.3.2 Subsidies and Financial Support

Government subsidies play a fundamental role in facilitating the transition to organic farming by alleviating financial barriers and mitigating associated risks. These subsidies help offset the typically higher costs associated with organic farming, such as those for organic inputs, certification, and infrastructural improvements. In developed countries, financial support has proven effective in increasing the adoption of organic practices. For example, the European Union's Common Agricultural Policy (CAP) provides substantial subsidies that have led to significant growth in organic farming across member states (Verburg *et al.*, 2022). In Nigeria, similar efforts have been made to encourage the adoption of organic farming through subsidies for organic inputs like organic fertilizers and pest control products, as well as financial support for infrastructure development. These measures are part of a broader strategy to align national agricultural policies with global trends favoring sustainable farming practices, which are essential for improving food security, environmental sustainability, and rural development (FAO, 2019). The Nigerian government, in collaboration with various stakeholders, has introduced a range of financial incentives aimed at reducing the initial costs of transitioning to organic agriculture and providing ongoing support to farmers adopting these practices.

However, the reach and effectiveness of these subsidies in Nigeria have been limited. Despite the introduction of subsidy programs, many farmers remain unaware of their availability or lack the means to access them. This issue is compounded by the fact that the subsidies often fail to adequately address the diverse needs of farmers, especially those in remote and under-served areas. The complexity and bureaucratic nature of the application processes for subsidies can also be a deterrent for many small-scale farmers who may lack the necessary administrative support and knowledge to navigate these systems effectively (Rizzo *et al.*, 2023). Moreover, the financial support provided is often insufficient to cover the full costs of transitioning to and maintaining organic farming practices. The higher costs associated with organic inputs and the additional labor required for organic farming can be prohibitive, particularly for smallholder farmers who operate on tight budgets. As a result, the subsidies do not always provide the level of financial security needed to encourage widespread adoption of organic practices (Ogunsumi & Adeola, 2020). This gap highlights the need for more comprehensive and tailored financial support programs that consider the specific needs and challenges faced by different types of farmers.

The limited impact of subsidies in Nigeria can also be attributed to the lack of integration between subsidy programs and other forms of support, such as educational and extension services. Effective adoption of organic farming requires not only financial support but also access to information, training, and technical assistance. Without a coordinated approach that combines financial incentives with capacity-building initiatives, the full potential of subsidies to promote organic farming may not be realized (FAO, 2019). This underscores the importance of developing integrated policy frameworks that link financial support with other critical resources to support farmers in the transition to organic agriculture. Furthermore, there is a need to address systemic issues such as market access and infrastructure development to enhance the effectiveness of subsidy programs. Farmers need reliable markets for their organic products to ensure that the financial benefits of organic farming outweigh the costs. Improving market infrastructure and developing robust supply chains for organic products can help create more economic opportunities for farmers and make organic farming a more attractive option (Familusi *et*

Original Article

al., 2023). By ensuring that subsidies are part of a broader strategy that includes market development and support for agricultural infrastructure, Nigeria can better support farmers in adopting sustainable practices.

3.3.3 Education and Capacity Building

Education and capacity-building initiatives are crucial for fostering the growth of organic farming by raising awareness and equipping farmers with the necessary technical knowledge. These initiatives help bridge the gap between traditional farming practices and sustainable, organic methods, which are essential for improving agricultural productivity and environmental sustainability (Priya & Singh, 2023). In Nigeria, several programs have been developed to educate farmers about the benefits of organic farming and to provide training on organic practices. These programs are typically implemented by government agencies, non-governmental organizations (NGOs), and international bodies committed to promoting sustainable agriculture. For example, workshops, training sessions, and demonstration farms have been established to showcase organic farming techniques and their advantages over conventional methods (Chukwuma *et al.*, 2016).

Despite these efforts, the impact of educational programs in Nigeria is often constrained by limited resources. Many of these programs struggle with inadequate funding, which hampers their ability to reach a broader audience and to provide comprehensive training. The lack of financial support means that many educational initiatives cannot cover the costs of training materials, field demonstrations, and other essential components of effective capacity-building (Emeanaa *et al.*, 2017). Moreover, the extension services that are critical for disseminating information and providing on-the-ground support to farmers are often under-resourced and under-staffed. Extension workers play a vital role in bridging the knowledge gap between research institutions and farmers, but in many parts of Nigeria, there are insufficient numbers of trained extension workers to meet the needs of the agricultural community. This shortage limits the ability of extension services to provide personalized advice and support to farmers who are interested in transitioning to organic farming (Emeanaa *et al.*, 2017).

In addition to the challenges of limited resources and insufficient extension services, the effectiveness of education and capacity-building programs is further hindered by socio-cultural factors. Many Nigerian farmers are deeply rooted in traditional farming practices and may be resistant to adopting new methods, particularly those that require significant changes to their established routines. Overcoming this resistance requires not only technical training but also efforts to build trust and demonstrate the long-term benefits of organic farming through practical examples and success stories (Ogunsumi & Adeola, 2020). Another significant challenge is the geographic disparity in the availability of educational resources. Farmers in remote or underserved areas often have limited access to training programs and extension services, which tend to be concentrated in more accessible and economically developed regions. This geographic imbalance means that many farmers who could benefit most from organic farming education and support are often left out of these initiatives (Famulusi, Edriss, & Phiri, 2023).

To address these challenges, it is essential to develop more inclusive and well-funded educational programs that can reach a wider audience and provide comprehensive support to farmers. This includes increasing investment in extension services to ensure that more farmers have access to the information and assistance they need to adopt organic practices. Additionally, integrating organic farming education into formal agricultural curricula at educational institutions can help to build a new generation of farmers who are knowledgeable about sustainable agriculture and its benefits (Chukwuma *et al.*, 2016). Furthermore, leveraging modern communication

Original Article

technologies such as mobile applications, online platforms, and social media can help to disseminate information more effectively and reach farmers in remote areas. These technologies can provide farmers with access to training materials, expert advice, and peer support networks, helping to overcome some of the geographic and resource-related barriers to effective capacity-building (Ume *et al.*, 2023).

4. Challenges in Promoting Organic Farming in Nigeria

Despite the considerable potential benefits that organic farming offers, the adoption and expansion of these practices in Nigeria face numerous challenges. These challenges inhibit farmers from fully embracing organic farming and realizing its advantages, which include environmental sustainability, improved health outcomes, and enhanced economic opportunities.

- **High Certification Costs:** One of the most significant barriers to the adoption of organic farming in Nigeria is the high cost of obtaining organic certification. Certification is essential for farmers to access premium markets and to ensure that their products meet international organic standards. However, the costs associated with certification, which include fees for inspections, compliance processes, and ongoing maintenance, are often prohibitively expensive for small-scale farmers. This financial burden limits the number of farmers who can pursue organic certification and thereby restricts their market access and potential income from higher-value organic produce (Familusi, Edriss, & Phiri, 2023). The prohibitive costs of certification create a significant barrier to entry, particularly for smallholder farmers who lack the financial resources to invest in such processes (Ogunsumi & Adeola, 2020).

- **Limited Market Access:** Even for those farmers who manage to obtain certification, accessing markets that value and demand organic produce can be challenging. The infrastructure for distributing and marketing organic products in Nigeria is underdeveloped, which means that organic farmers often struggle to find reliable and profitable outlets for their products. This limited market access reduces the economic incentives for farmers to adopt and maintain organic farming practices, as they may not be able to secure a fair price for their produce or reach consumers who are willing to pay a premium for organic goods (Ume, Ojukwu, & Onwukwe, 2023). This lack of market access also impedes the overall growth of the organic sector, as it fails to create a robust demand for organic products that could drive further adoption among farmers (Chukwuma, Nwankwo, & Obi, 2016).

- **Lack of Awareness and Technical Knowledge:** A widespread lack of awareness and understanding of organic farming principles and benefits is another significant challenge. Many Nigerian farmers are not familiar with organic farming practices or the advantages they offer over conventional methods. This gap in knowledge means that farmers may not recognize the potential long-term benefits of switching to organic farming, such as improved soil health, reduced chemical usage, and increased market opportunities (Emeanaa, Okeke, & Ike, 2017). Additionally, there is a scarcity of technical knowledge and skills required to implement and sustain organic farming practices effectively. This lack of technical expertise can hinder farmers from making the transition to organic methods, as they may not know how to manage pests organically, enhance soil fertility without synthetic fertilizers, or meet the rigorous standards required for organic certification (Ogunsumi & Adeola, 2020).

- **Insufficient Financial Support:** While there are some subsidies and financial support mechanisms available for organic farming in Nigeria, they are often insufficient to cover the significant costs associated with transitioning to organic practices and maintaining certification. The current levels of financial support, which may include subsidies for organic inputs and infrastructure development, do not adequately address the diverse needs

Original Article

of farmers, especially smallholders who may require additional resources to offset the initial investment required for organic farming (FAO, 2019). Without adequate financial assistance, many farmers are unable to bear the costs of adopting organic practices, which include purchasing organic seeds, compost, and other inputs, as well as investing in new technologies and practices that are necessary for successful organic farming (Rizzo, Migliore, & Schifani, 2023). The lack of sufficient financial support limits the ability of farmers to transition to and sustain organic farming, thereby constraining the growth of the organic sector in Nigeria (Verburg, 2022).

- **Limited Extension Services and Support:** Extension services, which provide critical support and education to farmers, are often inadequate in Nigeria. These services are essential for disseminating information about organic farming practices and providing farmers with the technical assistance they need to adopt and maintain these methods. However, the availability and quality of extension services vary widely, and many farmers, particularly in remote or underserved areas, have limited access to the support they need. This lack of adequate extension services further exacerbates the challenges faced by farmers who are interested in organic farming but lack the knowledge and resources to implement it successfully (Emeanaa *et al.*, 2017).

- **Socio-Cultural Barriers:** There are also socio-cultural factors that impede the adoption of organic farming practices. Many farmers are deeply entrenched in traditional farming practices and may be resistant to adopting new methods, especially those that require significant changes to their established routines. Overcoming this resistance requires not only technical training but also efforts to build trust and demonstrate the long-term benefits of organic farming through practical examples and success stories. Changing deeply held perceptions and practices is a gradual process that requires sustained effort and engagement from various stakeholders (Ume *et al.*, 2023).

To address these challenges, it is essential to develop targeted interventions that can support farmers in overcoming the barriers to adopting organic farming. This includes increasing financial support and subsidies, improving access to certification and markets, enhancing educational programs and extension services, and addressing socio-cultural barriers through community engagement and awareness campaigns. By tackling these issues, Nigeria can create a more supportive environment for organic farming and realize the potential benefits of sustainable agriculture for food security, environmental health, and rural development (Chukwuma *et al.*, 2016; Ogunsumi & Adeola, 2020).

5. Opportunities for Enhancing Organic Farming Policies

Despite the challenges that currently hinder the widespread adoption of organic farming in Nigeria, there are numerous opportunities for policy enhancement that can foster the growth and sustainability of organic agriculture. By leveraging these opportunities, Nigeria can build a more robust organic farming sector that contributes to environmental sustainability, economic growth, and improved food security.

1. **Improving Certification Processes:** One of the key strategies for promoting organic farming is to streamline the certification process. High certification costs and complex procedures have been significant barriers for many farmers, especially small-scale operators. Simplifying these processes and reducing costs can make certification more accessible and attractive to a broader range of farmers. This could involve introducing subsidies specifically for certification costs, reducing bureaucratic hurdles, and providing support for navigating the certification process. By lowering these barriers, more farmers will be able to obtain certification, thereby increasing the supply of certified organic products and enhancing market access (Janssen & Hamm, 2012). Improved certification

Original Article

processes can also include local certification schemes that are less costly but still maintain rigorous standards, which can help more farmers participate in organic markets (Familusi, Edriss, & Phiri, 2023).

2. Expanding Market Opportunities: Developing both local and international markets for organic products is essential for providing farmers with the economic incentives needed to adopt and sustain organic farming practices. Enhancing market opportunities involves creating robust market linkages that connect organic farmers with consumers who are willing to pay a premium for organic products. This can be achieved through initiatives such as organic farmers' markets, cooperatives, and e-commerce platforms dedicated to organic produce. Additionally, establishing export pathways for organic products can open up new markets and increase the profitability of organic farming (Bui & Nguyen, 2021). Government policies can play a significant role in facilitating market access by supporting infrastructure development, such as organic product processing facilities and transportation networks, which can help farmers reach broader markets (Rizzo, Migliore, & Schifani, 2023).

3. Enhancing Education and Extension Services: Education and capacity building are critical for the successful adoption of organic farming. Investing in comprehensive educational programs and extension services can equip farmers with the knowledge and skills necessary to transition to and maintain organic farming practices. This includes training on organic farming techniques, pest management, soil health, and sustainable agricultural practices. Extension services can also provide ongoing support and technical assistance, helping farmers to address challenges and improve their farming practices over time (Priya & Singh, 2023). Enhancing these services can involve partnerships between government agencies, non-governmental organizations, and educational institutions to develop tailored programs that meet the specific needs of farmers in different regions of Nigeria (Chukwuma, Nwankwo, & Obi, 2016).

4. Increasing Financial Support: Providing more substantial financial support is crucial for reducing the barriers to adopting organic farming. This can include expanding subsidies for organic inputs such as organic seeds, fertilizers, and pest control products, as well as offering grants or low-interest loans for farmers to invest in the necessary infrastructure and equipment for organic farming. Financial support can also be directed towards helping farmers cover the costs associated with certification and compliance with organic standards (Verburg *et al.*, 2022). In addition to direct financial support, establishing financial risk management tools, such as crop insurance and price guarantees for organic produce, can help farmers mitigate the risks associated with transitioning to organic farming (Ogunsumi & Adeola, 2020).

5. Encouraging Private Sector Involvement: The private sector can play a vital role in supporting the growth of organic farming through investments in supply chains, research and development, and market development. Encouraging private companies to invest in organic agriculture can lead to the development of innovative products and services that support organic farming practices. Partnerships between the government and private sector can also facilitate the development of infrastructure and services that enhance the competitiveness of organic products in both domestic and international markets (Chukwuma *et al.*, 2016).

6. Promoting Public Awareness and Consumer Education: Increasing public awareness and educating consumers about the benefits of organic farming can drive demand for organic products and encourage more farmers to adopt organic practices. Public awareness campaigns can highlight the environmental, health, and economic benefits of organic farming, fostering a market environment that values and supports organic produce.

Original Article

Educating consumers can also involve promoting organic products through labeling and certification schemes that build trust and transparency in the organic food supply chain (Bui & Nguyen, 2021).

7. Developing Supportive Policies and Regulations: Finally, developing and implementing supportive policies and regulations that encourage organic farming is essential for creating an enabling environment. This can include policies that incentivize organic farming through tax breaks, grants, and subsidies, as well as regulations that ensure fair pricing and market access for organic products. Creating a policy framework that aligns with international organic standards can also help Nigerian organic farmers compete in global markets (FAO, 2019). Collaborative efforts among government agencies, non-governmental organizations, and industry stakeholders are crucial for developing policies that address the unique challenges and opportunities associated with organic farming in Nigeria (Emeanaa, Okeke, & Ike, 2017).

By addressing these opportunities, Nigeria can create a more supportive environment for organic farming, fostering the growth of a sustainable agricultural sector that benefits farmers, consumers, and the environment.

6. Discussion of Findings

This systematic review highlights several key findings regarding the promotion and adoption of organic farming in Nigeria through policy interventions. Despite the significant efforts by the Nigerian government and various stakeholders to encourage organic farming, several challenges persist that hinder its widespread adoption.

6.1. Certification and Market Access

The review finds that organic certification is crucial for ensuring the authenticity of organic products and accessing premium markets. However, the high costs associated with certification, including fees for inspections and compliance, pose a significant barrier for small-scale farmers. This limits their ability to gain certification and, consequently, access higher-value markets that offer better economic incentives. The findings suggest that reducing certification costs and simplifying the certification process could significantly increase the number of certified organic farmers and expand market access. This aligns with Janssen and Hamm (2012), who emphasize the role of certification in providing economic incentives and market opportunities.

6.2. Financial Support and Subsidies

Subsidies and financial support are essential for offsetting the higher initial costs associated with transitioning to organic farming. In Nigeria, the current level of subsidies for organic inputs and infrastructure is insufficient to cover these costs, deterring many farmers from adopting organic practices. The findings indicate that increasing the amount and reach of subsidies could reduce financial barriers and encourage more farmers to transition to organic farming. Verburg *et al.* (2022) support this view, highlighting the importance of subsidies in reducing financial risks and facilitating organic farming.

6.3. Education and Capacity Building

Educational programs and capacity-building initiatives are critical for increasing awareness and providing the technical knowledge required for organic farming. However, the review reveals that these programs in Nigeria are often limited by inadequate resources and insufficient extension services. This gap hinders the dissemination of knowledge about organic farming practices and their benefits, resulting in low adoption rates. The findings underscore the need for more robust investment in education and extension services to improve farmers' knowledge and skills. Priya and Singh (2023) emphasize the importance of such educational initiatives in promoting organic farming.

Original Article

6.4. Policy Alignment and Strategic Development

The review highlights that while Nigeria has introduced several policies to promote organic farming, these policies often fall short in terms of strategic alignment with global trends and local needs. Efforts to align national agricultural policies with sustainable farming practices are crucial for fostering an environment that supports organic agriculture. The findings suggest that more comprehensive policy frameworks, reflecting the successful strategies from developed economies, could help in overcoming the existing challenges. The FAO (2019) underscores the importance of policy alignment in promoting sustainable agricultural practices.

6.5. Opportunities for Enhancing Organic Farming

The review identifies several opportunities for enhancing organic farming policies in Nigeria. Improving certification processes by reducing costs and complexities can significantly increase the number of certified organic farmers and expand their market reach. Developing robust local and international markets for organic products can provide better economic incentives for farmers. Enhancing education and extension services through increased investment can improve awareness and technical knowledge among farmers. Finally, increasing financial support through more substantial subsidies can reduce the barriers to adopting organic farming. These opportunities, if effectively leveraged, can transform Nigeria's organic farming landscape, promoting sustainable agriculture and contributing to a more resilient agricultural sector.

7. Conclusion

This systematic review underscores the critical role of policy measures in advancing organic farming in Nigeria. While the existing policies have established a foundational framework for the adoption of organic agriculture, there remain substantial challenges that need to be tackled to achieve widespread adoption and extensification. To foster the growth of organic farming, it is essential to streamline certification processes, broaden market opportunities, enhance educational and extension services, and augment financial support. By addressing these areas, Nigeria can significantly promote sustainable agricultural practices, thereby contributing to an agricultural sector that is not only environmentally sustainable but also economically robust.

References

- Altieri MA (2018) *Agroecology: the science of sustainable agriculture*. CRC Press
- Ayuya OI (2019) Organic certified production systems and household income: micro level evidence of heterogeneous treatment effects. *Org Agr* 9, 417–433 <https://doi.org/10.1007/s13165018-0236-8>
- Atoma NC, Anyoha PN, Chikaire UJ et al (2020) Adoption of organic farming practices in the rural household of South-South, Nigeria—a case study. *Org Agr* 10(Suppl 1):173–178. <https://doi.org/10.1007/s13165-020-00327-x>
- Bhatt A, John J (2023) 'Including farmers' welfare in a government-led sector transition: The case of Sikkim's shift to organic agriculture', *J Clean Prod.* 411, 137207. Available at: <https://doi.org/10.1016/j.jclepro.2023.137207>.
- Blaće A, Čuka A, Šiljković Ž (2020) How dynamic is organic? Spatial analysis of adopting new trends in Croatian agriculture. *Land Use Policy*, 99: 105036. Available at: <https://doi.org/10.1016/j.landusepol.2020.105036>

Original Article

- BMEL. (2021). Organic farming: Knowledge and research. German Federal Ministry of Food and Agriculture. Retrieved from <https://www.bmel.de>
- Brito TP, de Souza-Esquerdo VF, Borsatto RS (2022) State of the art on research about organic certification: a systematic literature review. *Org Agr* 12:177–190. <https://doi.org/10.1007/s13165-022-00390-6>
- Bui HTM, Nguyen HTT (2021) Factors influencing farmers' decision to convert to organic tea cultivation in the mountainous areas of northern Vietnam. *Org Agr* 11:51–61. <https://doi.org/10.1007/s13165-020-00322-2>
- Chen Y *et al.* (2023) Does green transformation trigger green premiums? Evidence from Chinese listed manufacturing firms. *J Clean Prod*, 407:136858. Available at: <https://doi.org/10.1016/j.jclepro.2023.136858>
- Chkanikova O, Sroufe R (2021) Third-party sustainability certifications in food retailing: Certification design from a sustainable supply chain management perspective. *J Clean Prod* 282:124344. Available at: <https://doi.org/10.1016/j.jclepro.2020.124344>
- Chukwuma OU, Onunka C, Oranu C (2016) A comparative pilot production of dry season green pepper using organic, inorganic and a combination of inorganic and organic fertilizers in the University of Nigeria farm, Nsukka, Enugu State, Nigeria, 4(November), pp. 63–66
- Daddi T *et al.* (2015) Macro-economic and development indexes and ISO14001 certificates: a cross national analysis. *J Clean Prod* 108:1239–1248. Available at: <https://doi.org/10.1016/j.jclepro.2015.06.091>
- Dalmiyatun T *et al.* (2018) Motivation of farmers to cultivate organic rice in Central Java. *IOP Conference Series: Earth Environ Sci*, 102(1). Available at: <https://doi.org/10.1088/17551315/102/1/012043>
- Digal LN, Placencia SGP (2019) Factors affecting the adoption of organic rice farming: the case of farmers in M'lang, North Cotabato, Philippines. *Org Agr* 9:199–210. <https://doi.org/10.1007/s13165-018-0222-1>
- Djokoto JG, Owusu V, Awunyo-Vitor D (2016) Adoption of organic agriculture: Evidence from cocoa farming in Ghana. *Cogent Food & Agriculture*. Edited by F. Yildiz, 2(1), p. 1242181. Available at: <https://doi.org/10.1080/23311932.2016.1242181>
- Emeana E, Trenchard L, Dehnen-Schmutz K, Shaikh S (2018) Evaluating the role of public agricultural extension and advisory services in promoting agro-ecology transition in Southeast Nigeria. *Agroecol Sustain Food Syst*, 43(2), pp. 123–144. Available at: <https://doi.org/10.1080/21683565.2018.1509410>
- European Environment Agency. (2019). Organic farming and biodiversity. Retrieved from <https://www.eea.europa.eu/themes/agriculture/organic-farming>

Original Article

- Falconer K, Hodge ID, Sharp BM (2001) Do agri-environment schemes stimulate farmers to move to the organic sector? *Land Use Policy* 50:408–418
- Fanasch P, Frick B (2020) The value of signals: Do self-declaration and certification generate price premiums for organic and biodynamic wines?. *J Clean Prod*, 249:119415. Available at: <https://doi.org/10.1016/j.jclepro.2019.119415>.
- FAO (2007) Schemes: Managerial Skills Organic certification schemes: managerial skills and associated costs. *Agricultural Management, Marketing and Finance Occasional Paper* [Preprint]
- FAO (2019) Agroecological and other innovative approaches for sustainable agriculture and food systems that enhance food security and nutrition (Summary)
- FAO (2022) Organic Agriculture: What is organic agriculture? Available at: <https://www.fao.org/organicag/oafaq/oafaq1/en/> (Accessed: 20 December 2022)
- FAO. (2021). Training and educational resources on organic farming. Food and Agriculture Organization of the United Nations. Retrieved from <https://www.fao.org/organicag/training>
- Farrelly M (2016) Agroecology contributes to the sustainable development goals. *Farming Matters*, 32(3):32–34
- Feng D, Zhao G (2020) Footprint assessments on organic farming to improve ecological safety in the water source areas of the South-to-North Water Diversion project. *J Clean Prod* 254:120130. Available at: <https://doi.org/10.1016/j.jclepro.2020.120130>
- Greene C, Slattery E, McBride WD (2010) America's organic farmers face issues and opportunities. *Amber Waves*, 8(2):34–39
- FiBL. (2020). Research Institute of Organic Agriculture: Education and training. Retrieved from <https://www.fibl.org>
- Harelimana V *et al.* (2020) Identification of weaknesses in the implementation of environmental impact assessment regulations in industrial sector: A case study of some industries in Rwanda, Africa. *J Clean Prod* 258: 120677. Available at: <https://doi.org/10.1016/j.jclepro.2020.120677>
- IFOAM - Organics International (2014) The IFOAM Norms for Organic Production and Processing. Available at: https://www.ifoam.bio/sites/default/files/page/files/ifoam_norms_july_2014.pdf (Accessed: 23 September 2023)

Original Article

- IFOAM. (2022). The World of Organic Agriculture: Statistics and Emerging Trends 2022. IFOAM Organics International. Retrieved from <https://www.ifoam.bio>
- IFOM (2022) The World of Organic Agriculture 2003 – Statistics and Future Prospects, Foundation Ecology & Agriculture, Germany. Available at: http://www.soel.de/inhalte/publikationen/s/s_74.pdf
- Jaeger SR, Harker FR, Ares G (2023) Consumer insights about sustainable and “beyond organic” agriculture: A study of biodynamics in the United Kingdom, Australia, Singapore, and Germany. *J Clean Prod* 401:136744. Available at: <https://doi.org/10.1016/j.jclepro.2023.136744>
- Janssen M, Hamm U (2012) Product labelling in the market for organic food: Consumer preferences and willingness-to-pay for different organic certification logos. *Food Quality and Preference*, 25(1):9–22. Available at: <https://doi.org/10.1016/j.foodqual.2011.12.004>
- Kini J, Pouw N, Gupta J (2020) Organic vegetables demand in urban area using a count outcome model: case study of Burkina Faso. *Agric Food Econ* 8(1):22. Available at: <https://doi.org/10.1186/s40100-020-00166-0>
- Komakech AJ *et al.* (2014) Maps of animal urban agriculture in Kampala City. *Agron Sustain Dev* 34(2):493–500. Available at: <https://doi.org/10.1007/s13593-013-0164-7>
- Kubala J, Grodzińska-Jurczak M, Nieszporek K (2008) Motivations for Organic Farming among Farmers from Malopolska Province, Poland. *Intl J Environ Sustain Dev* 7:345–361. Available at: <https://doi.org/10.1504/IJESD.2008.021904>
- Lampkin, N., Foster, C., & Padel, S. (2015). The role of policy in the development of organic agriculture. In *Handbook of Organic Food Safety and Quality* (pp. 31-55). Woodhead
- Le C-Y *et al.* (2023) Co-benefits of carbon sink and low carbon food supply via shellfish and algae farming in China from 2003 to 2020. *J Clean Prod*, 414, p. 137436. Available at: <https://doi.org/10.1016/j.jclepro.2023.137436>
- Lehner M, Halliday SV (2014) Branding sustainability: Opportunity and risk behind a brand - based approach to sustainable markets. *Ephemera: Theory Politics Organ* 14(1):13–34. Available at: <http://lup.lub.lu.se/luur/download?func=downloadFile&recordId=4353929&fileId=4353946>
- Lesjak HA (2008) Explaining organic farming through past policies: comparing support policies of the EU, Austria and Finland. *J Clean Prod* 16(1):1–11. Available at: <https://doi.org/10.1016/j.jclepro.2006.06.005>

Original Article

- Lohr L, Park T (2010) Labor Pains: Valuing Seasonal versus Year-Round Labor on Organic Farms. *J Agric Resour Econ* 34. Available at: <https://doi.org/10.22004/ag.econ.54549>
- Mahon N *et al.* (2018) Towards a broad-based and holistic framework of Sustainable Intensification indicators. *Land Use Policy* 77:576–597. Available at: <https://doi.org/10.1016/j.landusepol.2018.06.009>
- Meyfroidt P, Lambin EF (2011) Global forest transition: prospects for an end to deforestation. *Annu Rev Environ Resour* 36:343–371
- Migliorini P, Wezel A (2017) Converging and diverging principles and practices of organic agriculture <https://doi.org/10.1007/s13593-017-0472-4>
- Mkhize S, Ellis D (2020) Creativity in marketing communication to overcome barriers to organic produce purchases: The case of a developing nation. *J Clean Prod* 242:118415. Available at: <https://doi.org/10.1016/j.jclepro.2019.118415>
- Moscovici D *et al.* (2022) Consumer preferences for organic wine - Global analysis of people and place. *J Clean Prod* 368: 133215. Available at: <https://doi.org/10.1016/j.jclepro.2022.133215>
- National Population Commission (NPC) [Nigeria] and ICF International (2022) Nigeria Demographic Survey. 538
- Nigerian Organic Agriculture Network (2018) Association of Organic Agriculture Practitioners of Nigeria (formerly, Nigerian Organic Agriculture Network) | Directory of Aflates, Association of Organic Agriculture Practitioners of Nigeria (NOAN). Available at: <https://directory.ifoam.bio/aflates/74-association-of-organic-agriculturepractitioners-of-nigeria-formerlynigerian-organic-agriculture-network> (Accessed: 7 April 2020)
- NING C *et al.* (2017) Impacts of chemical fertilizer reduction and organic amendments supplementation on soil nutrient, enzyme activity and heavy metal content. *J Integr Agric* 16 (8): 1819–1831. Available at: [https://doi.org/10.1016/S2095-3119\(16\)61476-4](https://doi.org/10.1016/S2095-3119(16)61476-4)
- Oberholtz L, Dimitri C, Greene C (2005) Price Premiums Hold on as U.S. Organic Produce Market Expands; Outlook Report VGS30801; U.S. Department of Agriculture, Economic Research Service: Washington, DC. (January), 1–22
- Reganold JP, Wachter JM (2016) Organic agriculture in the twenty-first century. *Nature Plants* 2(2):15221