



# Unlocking the Niche Market Potential of Organic Fertilizer: Evaluation and Projections for the Nigeria Organic Input Market Development

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## Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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## ABSTRACT

Organic fertilizers have several merits in support of their usage, including environmental friendliness, waste conversion purposes, and human hygiene considerations. These lend credence to the objectives of this paper. The study evaluated firm performance and market orientation with a view to profiling market segments within the organic fertilizer niche market and consumers' desire to use and willingness to buy organic fertilizers. Six organic fertilizer factories and fifty-eight farmers were sampled and described. Results showed that there were no significant obstacles or societal prejudice against organic fertilizer usage in Nigeria, rather patronage was hampered by a lack of

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awareness about it. Consumers exhibited a high level of willingness to buy organic fertilizer. It was concluded that there is growing coverage in adopting organic fertilizers in Nigeria. The study recommended product promotion, close collaborations between industry and academia, a paradigm shift in the use of organic fertilizer for farming, and market policies from the government as steps towards enhancing the marketability of organic fertilizer.

**Keywords:** Manure; production; market segmentation; technology option, economic performance, organic farming; composting; organo-mineral; pelletized fertilizer.

## 1. INTRODUCTION

The importance of the agricultural sector in developing countries cannot be overemphasized as it serves as the largest source of employment. The sector provides a means of livelihood for farming households with over 70% of Nigerians engaging directly or indirectly in the agricultural production of maize, cassava, guinea corn, and yam [1]. However, the methods used in producing these crops create a continuous detrimental impact on the environment, as the majority of the farmers adopt the use of conventional farming practices which have been projected to result in future scarcity of suitable farmland for food production [2]. As a result, the soil is over-fertilized, deteriorated, and overburdened with toxic chemicals, which significantly contributes to the loss of biodiversity [3,4]. This has been a key issue in terms of global policy, which has prompted efforts to find sustainable agricultural practices and long-term success in food production. As a result, organic farming is thought to be one of the best approaches to address this issue. The International Federation of Organic Movement (IFOAM) defines organic farming as a production method that relies on biodiversity, ecological processes, and cycles that are suited to local conditions to maintain the health of the soils, ecosystem, and people. To benefit the common environment, foster just relationships, and improve the quality of life for all parties concerned, it mixes tradition, creativity, and science. Organic fertilizer fosters a distinct production rationale for smallholder farmers, provides environmental insurance, and retains farm ecological characteristics to accomplish a genuine and long-term sustainable agricultural transformation [5,6,7]. This farm input avoids the use of conventional farming methods such as growth regulators, pesticides, and chemical fertilizers in favor of organic fertilizers derived naturally from plant materials such as dried or fresh plant materials, litter, animal manure, and agricultural by-products. Organic fertilizers sustain ecosystems, according to empirical data [8,4]. Furthermore, according to Omodara *et al.*, [9], the usage of organic fertilizer offers both

monetary and non-monetary benefits to farmers by enhancing agricultural output.

The usage of non-certified organic fertilizer has been a long-standing practice among Nigerian rural farmers. Traditional soil enhancement practices used in northern Nigeria included tannery sludge, excavation pit manure, municipal, and animal waste [10,11]. However, the usage of certified organic fertilizer in Nigeria is still in its early stages when compared to nations such as Ethiopia and Tanzania, which have approximately 220,000 and 149,000 certified manufacturers, respectively [1]. Only 316 certified crop producers were growing 54,995 acres of land in Nigeria in 2021, which is equivalent to an estimated 0.1% of the country's total agricultural acreage. The government has made efforts to realize the full potential of the production of organic fertilizer by raising awareness, organizing seminars, and farmers' training on the techniques of preparation and the environmental significance of organic fertilizer. The production, demand, and supply of certified organic fertilizer have not, however, improved significantly [12]. Farmers are reluctant to transition to organic fertilizers because they believe chemical-based fertilizers are effective and economical. Bulkiness, smell, and the lack of a dedicated market for organic fertilizers were also seen to have a substantial impact on adoption rates [2], hence a need to explore the avenue to create a market niche for organic fertilizer in Nigeria.

The emergence of the market niche would open up an enormous opportunity for organic fertilizer, which has been demonstrated to be a viable means of improving the soil in Nigeria. Crop type, source, nutritional content, region, and shape are the segments used to categorize the niche market for organic fertilizer [13]. Wang *et al.* [14] underlined that market drives the use and choice of organic fertilizer among crop farmers. Despite the enormous local market potential for organic fertilizers, the bulk market has not yet reached its full potential [15,16]. Little is known about the structure, market niche, and farmers' readiness to use this technique. Thus, the

objectives of this research are to (i) evaluate market characteristics for organic fertilizer in terms of firm performance and market orientation; (ii) profile desire to use and willingness to buy organic fertilizers; and (iii) examine market segments within that niche market.

## 2. MATERIALS AND METHODS

Six certified organic fertilizer manufacturing facilities and fifty-eight farmers from three southwestern Nigerian states—Lagos, Oyo, and Ondo—made up the study sample. The factories were situated at Lagos (factory A) Aleshinloye (factory B); Bodija (factory C); Ayeye (factory D); and Akure (factory E), respectively. Due to the high concentration of users of organic fertilizer in the three states, 58 crop farmers were also purposively sampled in a field survey using a structured questionnaire. Market variables for organic fertilizer, such as output, demand, prices, sales, revenue, desire to purchase, and willingness to pay, as well as market segmentation within the organic fertilizer market niche, are among the variables measured. Secondary data was sourced from relevant documents. Information gathered was analyzed with descriptive statistics method using Statistical Package for Social Statistics version 21.

## 3. RESULTS

### 3.1 Characteristics of Organic Fertilizer Market Niche: Performance and Market Orientation

Organic fertilizers produced in Southwestern Nigeria comprise Organo-Mineral, pelletized compost, and compost, as illustrated in Table 1, with monthly output ranging from 4 to 30 metric tons. When compared to other forms of OFs, Organo-Mineral fertilizers have the largest monthly sales (above 80 percent), followed by compost (above 60 percent). This is consistent with the findings of Adulraheem *et al.* [18], who discovered that most organic farmers buy organo-mineral fertilizer since it contains more minerals than compost and pelletized compost. In total, the average output of organic fertilizer in Nigeria was 77.7 metric tons. The largest producing firm was located in Lagos. This firm has a monthly production capacity of 30 metric tons of compost, followed by the Bodija plant at Ibadan (20 metric tons of organo-mineral and compost) and Aleshinloye plant (15 metric tons). It was also gathered that demand for organic fertilizer did not exceed supply in most of the producing firms. In Lagos state for instance,

while average monthly output stood at 30 metric tons of compost, demand for compost averaged 35 metric tons monthly. Similar records existed at Aleshinloye where demand and output for organic fertilizer (organo mineral, compost, and pelletized compost) stood at 15 tonnes monthly. However, the monthly output supply exceeded the demand for organo-mineral and compost fertilizers at Bodija firm. To buttress this, aside Lagos factory that sold 100% of the compost fertilizer produced, the percentage monthly sales at most of the organic fertilizer-producing firms were mostly at 40% output capacity for compost and between 60-80% for organo-mineral fertilizers. The total monthly revenue from organic fertilizer production stood at ₦3,432,767 (\$4,577.02), which shows that the market for organic fertilizer production is emerging in Nigeria.

### 3.2 Desire to Purchase and Willingness to pay for Organic Fertilizer

Table 2 shows consumers' desire to purchase organic fertilizers. The majority (94.8%) of the farmers preferred the use of organic fertilizer over inorganic fertilizer. However, 62.1% of the farmers occasionally use organic fertilizer while about half (55.2%) of the farmers were willing to pay for an average of 30.00 kg of organic fertilizer, while 10.0% were willing to purchase over 100kg of Organic fertilizers monthly. This finding also reveals that the major obstacles to the use of organic fertilizers in Southwestern Nigeria are non-availability (50%) and low awareness of the products (50%) among crop farmers. Meaning that substantial numbers of crop farmers have inadequate knowledge of organic fertilizers and their practices, limiting the niche market growth and potential.

The major incentives for the use of organic fertilizers are shown in Fig. 2. In descending order, about 27% used organic fertilizer due to its environmental friendliness. This is followed by crop efficiency (24.2%), user-friendliness (15.5%), affordability (10.4%) and ready availability (6.9%). The lowest rating went to lasting long in the soil (1.7%), this contradicts the popular opinion that organic fertilizers last longer in the soil and do not run off easily (Sridhar *et al.*, 2003). This implies that the quality of organic fertilizers produced in Nigeria may lack these good retentive qualities and there were few certified producers in the country. The low quality of organic fertilizer may be regarded as one of the reasons why some farmers have failed to switch from inorganic fertilizer to organic fertilizer.

**Table 1. Organic Fertilizer Firm Performance and Market Orientation**

S/N	Firm location	Average Output/ month (metric tons)	Average monthly demand (metric tons)	Range for Monthly demand (metric tons)	Manure Type	Price/ Kg (₦)	Monthly % Sale	Monthly Revenue (₦)
A	Lagos	30.0	35.0	20-50	Compost	64,000.00	100	2,000,000
B	Aleshinloye	15.0	15.0	10-20	Organo-Mineral	30,000 .00	80	816,667
					Compost	20,000.00	40	
					Pelletized Compost	20,000.00	60	
C	Bodija	20.0	15.0	10-20	Organo-Mineral	24,000.00	80	384,000
					Compost	20,000 .00	80	
D	Ayeye	4.0	1.5	1-2	Organo-Mineral	20,000.00	60	40,000
					Compost	30,000.00	40	
					Compost	20,000 .00	80	
E	Akure	8.5	7.5	5-10	Organo-Mineral	25,000.00	60	192,100
					Compost	19,000.00	40	
Total		77.5	74.0					3,432,767

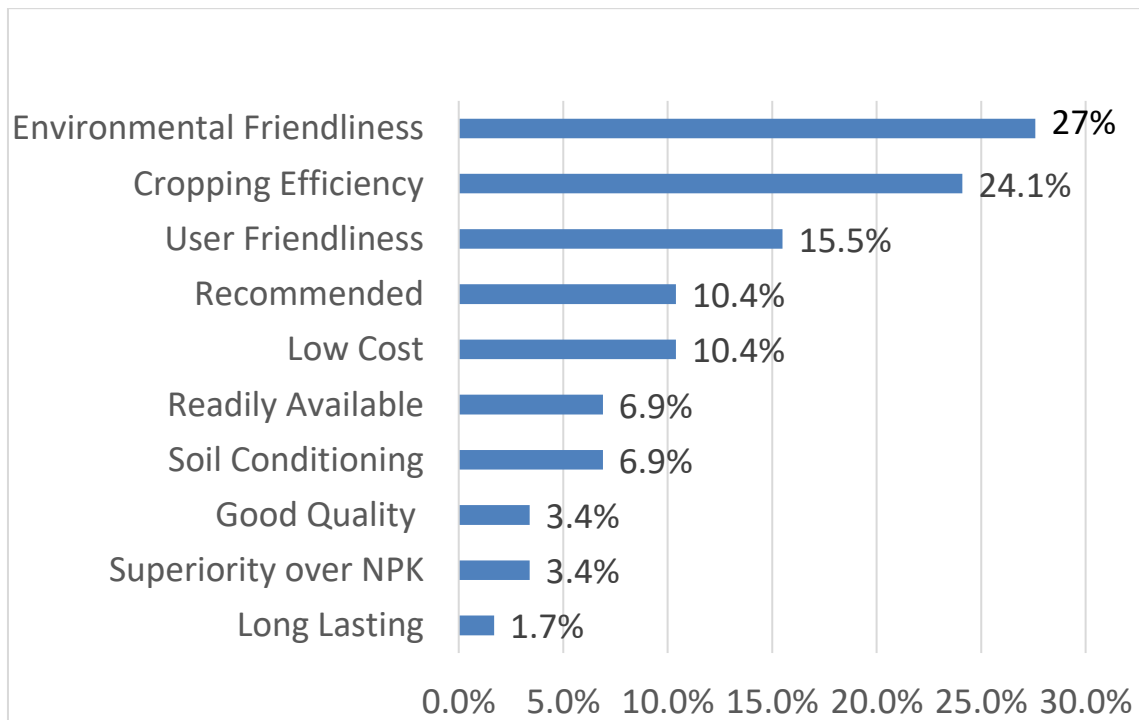
NB: \$1.00 equivalent to ₦750.00

The results in Fig. 1 indicate the distribution of organic fertilizer within its market segment. The governmental sector occupied about half (50%) of the organic fertilizer segment in Nigeria with cash crop farmers (30%) and individual farmers (20%), respectively.

**Table 2. Consumer Willingness-To-Buy and To-Pay for organic fertilizer**

Willingness-To-Buy/pay	Frequency	%
<b>Organic Fertilizer preference over NPK inorganic fertilizer</b>		
Strongly Agree/Prefer	30	51.7
Agree/Prefer	25	43.1
Disagree/Decline	1	1.7
<b>Frequency of use of organic fertilizer</b>		
Occasionally	36	62.1
Always	19	32.8
<b>Quantity of organic fertilizer willing to buy/month (kg)</b>		
10-25	16	27.6
26-50	16	27.6
51-75	3	5.2
76-100	7	12.1
101-150	2	3.4
Above 150	4	6.9
<b>How much in Naira are you willing to pay for a kilogram of organic fertilizer?</b>		
	n=58	
15.00	1	1.7
20.00	7	12.1
25.00	1	1.7
30.00	32	55.2
60.00	2	3.4
<b>Obstacles to the consumption of OFs</b>		
Non-availability of OFs	29	50
Non/Low awareness about OFs	29	50

*OF- Organic Fertilizer, NPK- Nitrogen, Phosphorus & Potassium*



**Fig. 1. Market Segments within the Organic Fertilizer market niche**

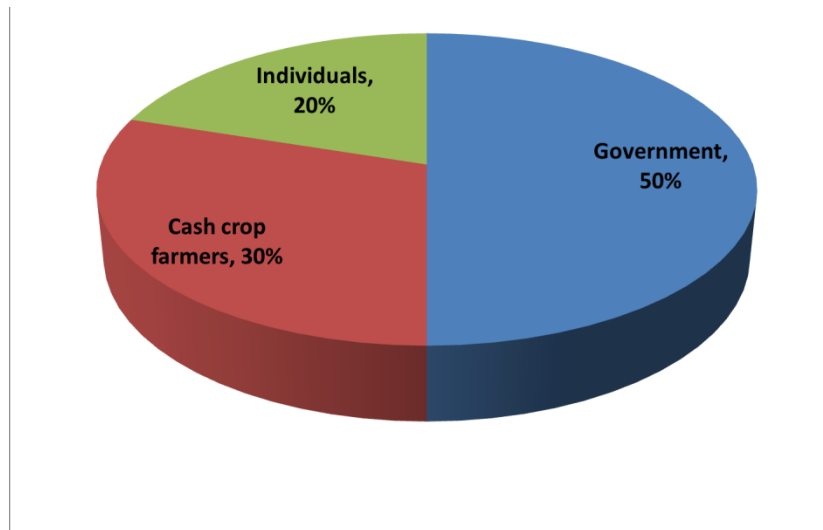


Fig. 2. Organic fertilizer consumers' distribution in Nigeria

#### 4. DISCUSSION

This article evaluates the potential of the bio-fertilizer input market in Nigeria. The result obtained showed that the organic fertilizer market is at the formative stage in Nigeria as only a few individual farmers have tapped into this farming practice. The market targeted government patronage and cash crop farmers as the main consumers. Farmers were willing to venture into organic farming but were prevented by non-availability and low levels of awareness about organic farming. This is in line with Dipeolu [2] that most farmers lack the technical knowledge about organic farming management practices.

It is worth knowing that several factors excluding the premium pricing have been identified to induce the farmers' willingness to convert to organic farming. This contradicts [18] who stated that the high cost of organic fertilizers prevents farmers from its usage. Environmental friendliness and cropping efficiency were major incentives that drove the preference for organic farming. Although, the practice is still occasional. This implies that certain factors influence the use of organic farmers among Nigerian farmers. This study thus supports the submission of Roba [19] that farmers tend to combine organic and inorganic fertilizers due to the low nutrients of organic fertilizers and environmental pollution of inorganic fertilizers. He further stated that there was a negligible increase in yield if there was appropriate application of organic fertilizer [20,21].

#### 5. CONCLUSION AND RECOMMENDATIONS

This article evaluates the potential of the bio-fertilizer input market in Nigeria and concludes that the organic fertilizer market is at the formative stage in Nigeria with a limited market segment. There is an increasing willingness to use organic fertilizer, however, non-availability and poor product awareness are inhibitors to the market growth.

Based on the foregoing, this study recommended that

1. Organic fertilizer production factories should develop strategies to promote and create awareness about their products to penetrate deeper into the local market potentials, improve and maximize their outputs, as well as leverage the merits of organic fertilizer.
2. A close collaboration between the organic fertilizer industry and academia through seminars, Research & Development, training, and regular advocacy visits is vital to raising the level of organic fertilizer acceptance among farmers.
3. Concerted efforts should be made to use farm extension programs to raise the level of organic fertilizer acceptance in Nigeria. The government on its part should evolve a strong financial, legislative, fiscal, and industrial policy in support of organic fertilizer production and utilization in the country.

4. The creation of a governmental agency or department within the Federal Ministry of Agriculture and Rural Development having oversight responsibility for the promotion and improved patronage of organic fertilizers as a viable local soil-improving technology would also go a long way in boosting organic fertilizer production capacity and sales.
5. Organic fertilizer products should also be listed among products that will be given high priority in the current agricultural value chain development.
6. Conscious efforts should be made to change the peculiar agricultural system in Nigeria. This means a change from a fallow system, shifting cultivation, and chemical-based agriculture. The government should wake up and look inward in supporting organic fertilizer market development. Efforts should be made to provide grants and state of the art technologies to the producers of organic fertilizers for sustainable development of the industry.
6. Blank SC, Thompson GD. Can/should/will a niche become the norm? Organic agriculture's short past and long future. *Contemporary Economic Policy*. 2004;22(4):483-503.
7. Ukoje JA, Yusuf RO. Organic Fertilizer: The Underestimated Component in Agricultural Transformation Initiatives for Sustainable Small Holder Farming in Nigeria. *Ethiopian Journal of Environmental Studies and Management*. 2013;6(6):794-801.
8. Hartmann M, Frey B, Mayer J, Mader P, Widmer F. Distinct soil microbial diversity under long-term organic and conventional farming. *The ISME Journal*. 2015;9(5):1177-1194.
9. Omodara OD, Ige OA, Oluwasola O, Oyebanji AT, Afape OO. Factors influencing cassava farmers' choice of climate change adaption practices and its effect on cassava productivity in Nigeria. *Heliyon*. 2023;9(3):1-13.
10. Essiet EU, Tudun Wada IY. Amendment of soil fertility using differing urban solid waste materials in kumbotso, kano state. *Journal of Social and Management Studies*. 1999;6: 56.
11. Yusuf MA, El-Sayed MM, Sadek II. Impact of Organic Manure, Bio-Fertilizer and Irrigation Intervals on Wheat Growth and Grain Yield. *American-Eurasian Journal of Agricultural & Environmental Sciences*. 2013;13(11):1488-1496.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

## REFERENCES

1. Statista. Agriculture in Nigeria-statistics and facts; 2022. Available:<https://www.statista.com/topics/6729/agriculture-in-nigeria/>
2. Dipeolu AO, Philip BB, Aiyelaagbe IOO, Akinbode SO, Adedokun TA. Consumer awareness and willingness to pay for organic vegetables in S.W. Nigeria. *Asian Journal of Food and Agro-Industry*. 2009;10(11):57-65.
3. Puech C, Baudry J, Joannon A, Poggi S, Aviron S. Organic vs. conventional farming dichotomy: Does it make sense for natural enemies? *Agriculture, Ecosystem & Environment*. 2014;194:48-57.
4. Atoma CN, Adesope OM, Familusi LC. Organic farming practices among livestock and fish farmers in southern Nigeria. Multifunctionality and Impacts of Conventional Agriculture. DOI:10.5772/intechopen.85522.
5. Conway GR, Barbier EB. *After the Green Revolution: Sustainable Agriculture for Development*. London; Routledge; 2013.
12. Mgbenka RN, Onwubuya EA, Ezeano CI. Organic farming in Nigeria: Need for popularization and policy. *World Journal of Agricultural Sciences*. 2015;11(6):346-355.
13. Nagavellemma KP, Wani SP, Lacroix S, Padmaja VV, Vineela C, Babu Rao M, Sahrawa KL. Vermicomposting: Recycling wastes into valuable organic fertilizer. *Global Theme on Agroecosystems Report no. 8. International Crops Research Institute for the Semi-Arid Tropics*. 2004;1-16.
14. Wang Y, Zhu Y, Zhang S, Wang Y. What could promote farmers to replace chemical fertilizers with organic fertilizers? *Journal of Cleaner Production*. 2018;199:882-890.
15. Sridhar MKC, Adeoye GO. Organo-mineral fertilizers from urban wastes: Developments in Nigeria. *The Nigerian Field*. 2003;68(2):91-11.
16. Olanrewaju OO, Illemobade AA. Waste to wealth: A case study of the Ondo State integrated wastes recycling and

- treatment project, Nigeria. European Journal of Social Sciences. 2009;8(1): 7-16.
17. Adulraheem MI, Hu J, Ahmed S, Li L, Muhammed S, Naqvi ZA. Advances in the Use of Organic and Organomineral Fertilizers in Sustainable Agricultural Production. Open Access Peer-Reviewed Chapter-Online First; 2023. DOI:10.5772/intechopen.1001465
  18. Hassan Y, Hussain N. Agricultural Pollution: An Assessment of Synthetic Fertilizer Application in Sudano-Sahelian Zone of Nigeria. Annals of Social Sciences Management Studies. 2018;2(1):1-7.
  19. Roba TB. Review on: The Effect of Mixing Organic and Inorganic Fertilizer on Productivity and Soil Fertility. Open Access Library Journal. 2018;5(6): 1-11.
  20. Assefa S, Tadesse S. The principal role of organic fertilizer on soil properties and agricultural productivity- a review. Agricultural Research & Technology Open Access Journal. 2019;22(2):046-050.
  21. Tzouvelekas V, Pantzios CJ, Christos F. Technical efficiency of alternative farming systems: The case of Greek organic and conventional olive-growing farms. Food Policy. 2001;26(6):549-569.

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