FUDMA Journal of Sciences (FJS)
ISSN online: 2616-1370
ISSN print: 2645 - 2944
Vol. 9 No. 12, December, 2025, pp 120 – 125
DOI: https://doi.org/10.33003/fjs-2025-0912-4235

TRENDS AND GROWTH RATES IN NIGERIA'S SESAME SEED PRODUCTION AND EXPORTS: IMPLICATIONS FOR AGRICULTURAL POLICY

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ABSTRACT

This study explored how sesame seed production and exports have evolved in Nigeria over the past five decades (1972–2022). Data were sourced from FAOSTAT, the National Bureau of Statistics, and other trade reports, and growth rates were assessed using tools such as the compound annual growth rate (CAGR) and coefficient of variation (CV). The results show that sesame production grew strongly, particularly between 2012 and 2022, when output increased by nearly 400%. Yet, this growth was unstable, affected by climate shocks, weak policies, and poor infrastructure. Exports, on the other hand, recorded a steadier rise, with an overall CAGR of 9.63%. The fastest growth came in the 1990s, when rising demand from Asia and the Middle East pushed exports up by more than 1,500%. Still, the export boom did not always match production growth. This mismatch points to deeper structural issues such as post-harvest losses, weak storage and processing capacity, and the lack of value addition. Most exports leave the country as raw seeds, which reduce potential earnings and job creation. In addition, informal cross-border trade continues to blur the true picture of Nigeria's sesame performance. Overall, the findings confirm sesame seeds in Nigeria's non-oil export drive but also underline the urgent need for investment in the value chain, stronger quality control, and better compliance with international standards. These steps are crucial for Nigeria to remain competitive and achieve sustainable growth in the global sesame market.

Keywords: Sesame seed, Agricultural exports, Production trends, Export growth, Nigeria, Value chain

INTRODUCTION

Sesame seed (*Sesamum indicum*) has emerged as a strategic export crop driven by increasing global demand due to its high oil content, nutritional value, and applications in the food, cosmetic, and pharmaceutical industries (ITC, 2021; NEPC, 2020). Nigeria is currently one of Africa's leading producers and exporters of sesame seed, alongside Sudan and Ethiopia (FAOSTAT, 2023). Sesame seed (*Sesamum indicum*) is a high-value oilseed crop that has gained increasing economic importance in Nigeria due to its strong export potential and adaptability to the country's semi-arid agro-ecological zones. Over the past two decades, sesame has emerged as one of Nigeria's leading non-oil agricultural export commodities, contributing significantly to foreign exchange earnings and rural livelihoods. Nigeria ranks among the top five producers of sesame globally, with cultivation widely practiced in northern states such as Benue, Taraba, Jigawa, and Nassarawa (FAO, 2021; NEPC, 2023; IITA, 2022). The crop's resilience to drought, short maturity period, and low input requirements make it ideal for resource-constrained farmers, further reinforcing its importance for rural livelihoods (Ayanwale *et al*., 2017; Okuneye & Ayinde, 2020).

The growth rate in domestic sesame seed production has shown a trend of early rapid expansion followed by fluctuations. Production increased from approximately 149,400 metric tonnes in 2010 to a peak of 995,000 tonnes in 2012, before experiencing periods of decline and later stabilising around 510,000 tonnes by 2022 (NBS, 2023). Nonetheless, yield per hectare improved modestly during the period, with a compound annual growth rate (CAGR) of about 14.6% between 2017 and 2022, indicating some gains in productivity despite reductions in land under cultivation (IndexBox, 2023).

Despite its great export potential, the growth trajectory of Nigeria's sesame seed sector has been inconsistent. While export volumes have increased in recent years, reaching over 500,000 metric tons in peak years, these gains have not always been reflected in trends of domestic production (FAOSTAT, 2023). Several factors have influenced fluctuations in output and export quantities, including, but not limited to, post-harvest losses, lack of quality control, inadequate processing and storage infrastructure, weak market linkages, and trade policy instability (NEPC, 2020; Adegbite *et al*., 2019). These factors have created a great disconnect between production capacity and Nigeria's ability to capitalise on export opportunities in competitive global markets fully. Meanwhile, export quantities and values have followed a consistently upward trend, driven by rising global demand for sesame in the food processing and oil extraction industries. In 2022, Nigeria recorded a substantial increase in its sesame seed exports, reflecting the commodity's rising global demand and Nigeria's expanding role in the international oilseed market. The country exported approximately 297,022 metric tonnes of sesame seed, up from 154,716 metric tonnes in 2021, representing a year-on-year volume growth of nearly 92%. In monetary terms, the export value reached an estimated US$330.95 million, a significant increase from US$190.86 million in the previous year (Divercity Times, 2023; ATQ News, 2023). The major export destinations include China, Japan, Turkey, and the United Arab Emirates. This sustained growth in export performance positions sesame as a critical driver of non-oil export diversification in Nigeria (Tridge, 2023).

However, the pace of export growth has often outstripped the rate of domestic production growth, creating a potential imbalance between supply capacity and international trade commitments. This mismatch suggests inefficiencies or

constraints in the domestic value chain, including post-harvest losses, inadequate storage and processing infrastructure, and limited quality control mechanisms (Oladipo & Lawal, 2021; NEPC, 2023). As a result, Nigeria primarily exports raw sesame seed with minimal value addition, limiting opportunities for employment generation and higher export earnings.

Moreover, significant quantities of sesame seed are lost to informal cross-border trade, especially through the northern corridors to Niger and Chad. These unrecorded transactions distort official export statistics and obscure the true performance of the sector (USAID, 2018). Furthermore, many Nigerian exporters face challenges in meeting the sanitary and phytosanitary standards required by key importing countries, resulting in rejections and reduced competitiveness (African Perceptions, 2024).

Due to the increasing global demand for sesame seeds, driven by countries such as Japan, China, Turkey, and India, there is a pressing need to examine Nigeria's production and export trends empirically. Understanding the growth rate and trajectory of export quantities is crucial for identifying the constraints that limit performance and designing evidence-based interventions to bridge existing gaps.

Over the past five decades, sesame seed has evolved into one of Nigeria's key non-oil export commodities, contributing significantly to foreign exchange earnings and rural livelihoods. Between 1972 and 2022, the crop's export value increased dramatically due to rising international demand, particularly from markets in Asia and the Middle East. Despite this export success, Nigeria's domestic production trends over the same period have been inconsistent, characterised by fluctuations in output, a decline in land area under cultivation, and uneven yield growth. Despite the strategic importance of sesame to Nigeria's agricultural trade, there is a paucity of longitudinal studies that examine the trends and growth rates of both production and export over an extended historical timeframe. Most existing literature focuses on short-term performance or specific segments of the value chain. This gap in empirical analysis limits policymakers' and stakeholders' capacity to design informed interventions that align domestic supply capabilities with external demand opportunities.

This study, therefore, investigates the trend and growth rate of sesame seed production and export quantity in Nigeria over the period 1972–2022. By employing descriptive statistical techniques and trade performance indicators, the research aims to reveal whether Nigeria's production growth has translated into increased exports, and if not, what structural barriers might be responsible. The findings are expected to provide valuable insights for policymakers, development practitioners, and stakeholders in the sesame value chain towards optimising Nigeria's export competitiveness.

MATERIALS AND METHODS

The study was conducted in Nigeria, one of the largest countries in Africa, which lies wholly within the tropics along the Gulf of Guinea on the West coast of Sub-Saharan Africa. Nigeria lies between 4^0 and 14^0 North of the equator and between longitudes 3^0 and 15^0 east of Greenwich. Nigeria has a total land area of 923,768.622 km², or approximately 98.3 million hectares, and a current population estimated at 215,175,364 people, according to Worldometer's elaboration from the United Nations database (Worldometer, 2022). Much of the country is traversed by productive rivers. Nigeria's ecology ranges from tropical forests in the south to dry savannah in the far north, supporting a diverse range of plant and animal life. Nigeria has a tropical climate with two distinct seasons: the dry and the wet seasons. It includes the following ecological zones: Mangrove Swamp, Rainforest, Guinea Savannah, Sudan Savannah, and Sahel Savannah. Its terrain is divided into the southern lowlands, blending into central hills and plateaus, with mountains in the south and plains in the north. Arable crops occupy 33.02% of the total land cover; permanent crops cover 3.14%, while other land uses account for 63.84% (Udah and Nwachukwu, 2015).

Types and Sources of Data

The Data sources used for this study was the National Annual aggregates, obtained from secondary sources. Data on Sesame seed production and export quantities, covering the period under study (1972-2022), were obtained from several issues of the Production Yearbook published by the Food and Agriculture Organisation (FAO) and FAOSTAT from 1972-2022

RESULTS AND DISCUSSION

Growth Rates in Domestic Production of Sesame Seed

Table 1 shows the growth rates in domestic production of sesame seed in Nigeria from 1972 to 2022. The results showed that the 1982-1991 sub-periods had the lowest production volume and the lowest growth trend percentage of 0%, as there was no growth between the 1972-1981 sub-period. Sesame seed production in Nigeria has shown notable growth over the decades, even during the study period of 1972-2022. This may be due to the emergence of Nigeria as a major sesame producer in the world, especially for export markets like China and Japan.

Since the 1992-2001 sub-period, the growth in the production trend has been on a significant increasing trend, as there have been increases in the production details. It is worth noting that the 2012-2022 sub-period had the highest percentage increase at 394%.

Prof. Hussaini Doko Ibrahim, the Director-General of the Raw Materials Research and Development Council (RMRDC), reported in The Guardian, 2021, that "The increasing adoption of sesame seeds in the bakery and snacks are driving the growth of the market. Moreover, the rising inclination towards healthier products is boosting the market growth. According to FAO (2021), Nigeria ranked 3rd in Africa's production and the 5th largest global producer. Nigeria's production contributed 6.68% to the global sesame seed output for 2022. Africa's total sesame seed production in 2022 was over 3.77 million metric tons, with Nigeria being a significant contributor.

The significant increase may be attributed to the establishment of the National Seed Policy, under the National Agricultural Seeds Council, which is saddled with the responsibility of improving the quality of seeds sold to farmers for higher yields and better income.

This period of 1972-1981 exhibited the lowest variation in sesame seed production, with a CV of 0.06, indicating a relatively stable and consistent output despite the reported annual percentage decrease of -28%. The minimal variation may reflect the subsistence-level nature of sesame farming at the time, limited commercial interest, and relatively low responsiveness to market or policy shocks.

The CV increased to 0.14 in the 1982-1991 sub-period, suggesting modest growth in variability. This coincided with the Structural Adjustment Program (SAP) era, during which input subsidies were removed, and agricultural exports were encouraged. However, infrastructural constraints and macroeconomic uncertainty led to uneven results in production levels.

Interestingly, the CV slightly declined to 0.13 in the 1992-2001 periods, despite a 67% increase in annual production. This suggests that while production expanded substantially, the output remained relatively consistent year-on-year, possibly due to improved seed varieties, expanded market access, or better coordination with export channels.

There was a significant jump in variation to 0.37 in the 2002-2011 period, reflecting a more volatile production environment. This volatility could be attributed to factors such as climate variability, market price fluctuations, and inconsistent government support. The increase in production (86%) during this time may have outpaced the institutional and infrastructural capacity needed to manage it sustainably.

Despite the exponential increase in sesame seed production (394%), the CV remained high at 0.35 in the 2012-2022 period. This suggests that while Nigeria experienced a boom in sesame output—likely due to increased global demand, improved farming practices, and export incentives—there remained significant inconsistency and exposure to shocks, such as pest outbreaks, political unrest in the north (where sesame is mostly grown), and logistics constraints.

Table 1: Growth Rate in the Domestic Production of Sesame Seed in Nigeria

Sub period	Total volume ('000 tons/annum)	Annual percentage change (%)	Coefficient of variation
1972-1981	375,000	-28	0.06
1982-1991	375,000	0	0.14
1992-2001	628,000	67	0.13
2002-2011	1,168,597	86	0.37
2012-2022	5,775,178	394	0.35
Overall period	8,321,775	519	1.05

Source: Computed from FAO (2025)

Figure 1 below shows the trends in sesame seed production in Nigeria from 1972 to 2022, showing a remarkable transformation shaped by policy shifts, market dynamics. For more than three decades (1972–2005), production remained low and relatively stable, averaging below 70,000 tons. This slow growth reflected the country's heavy dependence on oil, limited investment in agricultural inputs, and weak institutional support for export-oriented crops.

A gradual increase became evident between 2006 and 2010, driven by renewed government attention to agriculture and rising international demand for sesame as a high-value oilseed. The most dramatic expansion occurred after 2011, when production soared and peaked around 2013–2014, surpassing one million tons. This surge coincided with the Agricultural Transformation Agenda, which encouraged private sector participation and enhanced access to improved seed varieties.

However, production after 2014 became highly unstable, with noticeable declines in 2016 and 2020. These fluctuations were largely linked to erratic weather patterns, insecurity in producing regions, and market uncertainties. Despite this volatility, Nigeria's sesame output has remained significantly higher than in previous decades, reflecting a structural shift from small-scale subsistence production to commercial export orientation.

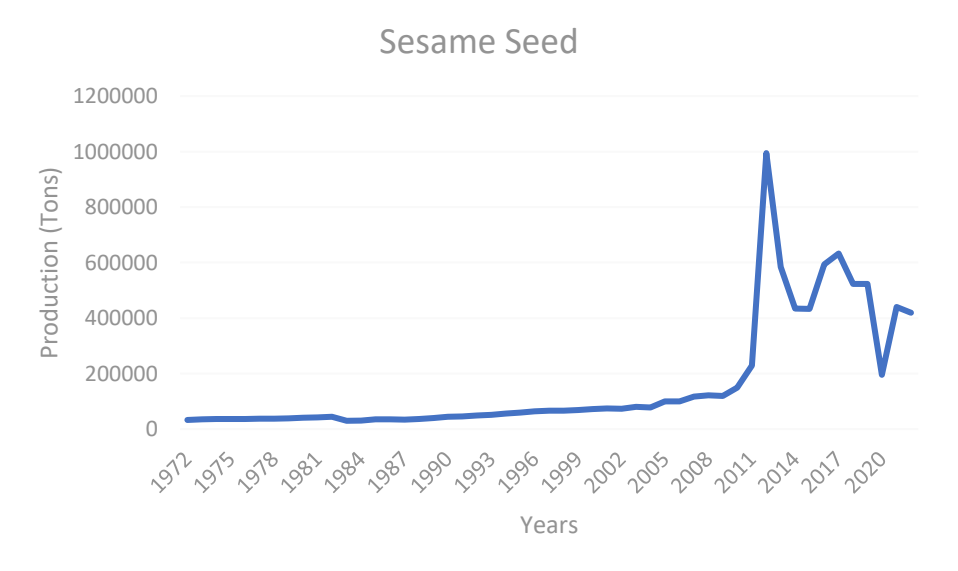

Figure 1: Trends of Growth Rate in Production of Sesame Seeds in Nigeria (1972-2022)
Source: Computed from FAO (2025)

Growth Rates in Export Quantity of Sesame Seed

Table 2 displays the trend in the growth rate of sesame seed export quantity in Nigeria from 1972 to 2022. The initial sub-period exhibited a very low export quantity of sesame seed, which may be attributed to low production of the commodity, with the main focus on other crops like cocoa and kola nut.

The 1992-2001 sub-period experienced a remarkable increase of 1581% compared to previous years. The periods 2002-2011 and 2012-2022 also saw significant export growth, at 279% and 163% respectively. This growth is driven by rising global demand and increased domestic seed production, especially for sesame oil and its use in various industries such

as food, cosmetics, and pharmaceuticals. Nigeria's sesame seed exports have grown significantly over the past fifty years, evolving from a minor agricultural product to a key part of the country's economy, especially since the early 2000s, as shown in the table above. This growth reflects Nigeria's rise as a major sesame producer, particularly targeting export markets such as China and Japan. The increase in sesame production can be linked to several factors. Nigeria's emergence as a leading exporter, especially to markets like China and Japan, has boosted demand. According to the Executive Director of the Nigerian Export Promotion Council (NEPC), Nonye Ayeni, Nigeria has emerged as Africa's second-largest exporter of sesame and the fourth-largest globally, with N700 billion worth of products exported in 2024. Also, Data obtained from the National Bureau of Statistics show that sesame seeds ranked the fourth-biggest non-oil export product in the first quarter of 2022.

Over the 50 years from 1972 to 2022, Nigeria's sesame seed export volume experienced a compound annual growth rate (CAGR) of approximately 9.63%. This steady long-term growth underscores the increasing significance of sesame seeds in Nigeria's non-oil export sector, driven by rising international demand and government initiatives to diversify export earnings. The consistent upward trend reflects both supply-side factors, such as expanded cultivation areas and enhanced post-harvest handling, as well as demand-side pressures from major importing countries, including China, Japan, and Turkey. Despite short-term fluctuations caused by policy changes, climatic conditions, and trade logistics, the overall trend indicates that sesame seed remains a promising export commodity capable of making a substantial contribution to Nigeria's agricultural GDP and foreign exchange earnings. This growth rate aligns with global trends in oilseed demand. It highlights the importance of strategic investment in storage infrastructure, value-added production, and adherence to international quality standards to maintain and improve export competitiveness.

Analysis across sub-periods reveals that from 1972 to 1991, exports were highly volatile, with CVs of 0.66 and 0.86, respectively. These figures reflect the fragile nature of agricultural exports during the early post-independence and Structural Adjustment Program (SAP) era, characterised by erratic government policies, poor trade infrastructure, and macroeconomic instability. Between 1992 and 2001, exports surged significantly, with a 1581% annual percentage change and a CV of 0.75. While this period marked Nigeria's growing integration into global sesame markets, the high variation underscores the persistent export instability due to climatic risks, inconsistent supply, and global price fluctuations.

However, from 2002-2011, the CV dropped notably to 0.38 and further to 0.28 in the 2012–2022 period, suggesting a gradual stabilisation of sesame seed exports. This improvement can be attributed to enhanced market linkages, better post-harvest handling, increased foreign demand (especially from Asia), and targeted policy support for non-oil exports. Despite this progress, the overall CV of 2.93 over the entire period indicates that long-term volatility has been substantial, emphasising the need for sustained investment in value chains, storage, and trade infrastructure to maintain export resilience.

Table 2: Growth Rate in the Export Quantity of Sesame Seed in Nigeria

Sub period	Total volume ('000 tons/annum)	Annual percentage change (%)	Coefficient of variation
1972-1981	24,609	-84	0.66
1982-1991	12,469	-49	0.86
1992-2001	209,665	1581	0.75
2002-2011	793,900	279	0.38
2012-2022	2,085,335	163	0.28
Overall period	3,125,978	1890	2.93

Source: Computed from FAO, 2025

The trend in sesame seed exports from Nigeria between 1972 and 2022 as shown in Figure 2 shows a remarkable evolution from near insignificance to becoming one of the country's major non-oil export commodities. For more than two decades, from 1972 to the mid-1990s, sesame exports remained very low and largely stagnant. This period reflected the dominance of crude oil in Nigeria's trade profile and limited attention to agricultural exports. A gradual rise in export quantities began after 1995, coinciding with trade liberalization and renewed global demand for oilseeds. By the early 2000s, exports began to grow steadily as more farmers adopted sesame cultivation and international markets recognized Nigeria as a reliable supplier. The most significant surge occurred after 2011, when exports increased sharply, reaching nearly 300,000 tons by 2022. This expansion was driven by policy support under the Agricultural Transformation Agenda and growing demand from Asian markets, particularly China, Japan, and India.

However, export growth was not without interruptions. The dips observed around 2017 and 2020 likely reflect price fluctuations and insecurity in producing regions. Despite these challenges, the overall upward trajectory highlights the growing importance of sesame seed as a strategic export crop for Nigeria's diversification agenda.

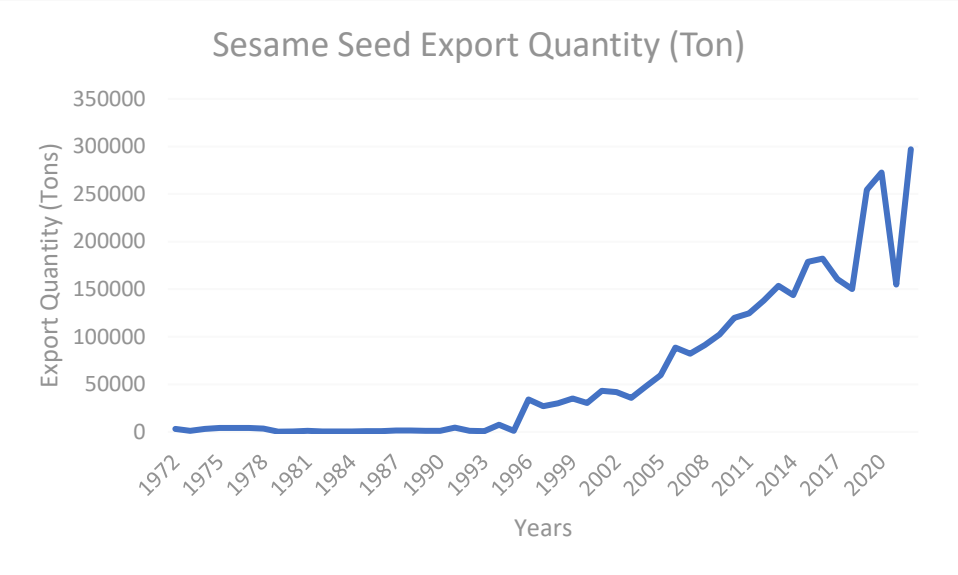

Figure 2: Trends of Growth Rate in Export Details of Sesame Seed in Nigeria (1972-2022)
Source: Computed from FAO, 2025

Policy Implications

To unlock the full potential of sesame seeds, policy must shift from short-term export promotion to long-term value chain development. First, investment in rural infrastructure, irrigation, and climate-smart practices is essential to stabilise production. Second, reducing post-harvest losses through improved storage, processing, and logistics would increase marketable surpluses and enhance competitiveness. Third, Nigeria should promote value addition by supporting small- and medium-scale processors, enabling the country to export oil and semi-processed products rather than raw seeds. Ultimately, strengthening compliance with international quality and sanitary standards is essential for reducing export rejections and expanding market access. With these interventions, sesame can become a reliable driver of agricultural diversification, rural incomes, and foreign exchange earnings in Nigeria.

CONCLUSION

This study reviewed the long-term trends and growth rates of sesame seed production and exports in Nigeria, using data from 1972 to 2022. The findings indicate that sesame has become one of Nigeria's most dynamic non-oil exports, with production expanding markedly in recent decades and exports consistently increasing. However, despite output growth, production patterns remain highly volatile due to climate shocks, weak infrastructure, and inconsistent policies. Meanwhile, export growth has frequently outpaced production growth, revealing inefficiencies such as high post-harvest losses, limited storage and processing facilities, and overreliance on raw seed exports. These structural weaknesses diminish the sector's capacity to fully benefit from the rising global demand for sesame.

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