

THE IMPLEMENTATION OF AGRICULTURE PROMOTION POLICY (GREEN ALTERNATIVE) AND FOOD SECURITY IN NIGERIA, 2016-2024

Ignatius Ifesinachi Ngini

Nnamdi Azikiwe University, Awka
ig.ngini@unizik.edu.ng
ORCID: 0009-0007-9465-9795

Adichie, Izuchukwu

Nnamdi Azikiwe University, Awka
izuchukwuadichie@gmail.com

Emelife Anthony Mmaduka

Nnamdi Azikiwe University, Awka
in.emelife@unizik.edu.ng

ABSTRACT

Food security is central to Nigeria's survival and development, yet persistent hunger, price volatility, and structural weaknesses have limited the country's agricultural potential. This study critically examined the implementation of Nigeria's Agricultural Promotion Policy (Green Alternative) and its implications for national food security between 2016 and 2024. Grounded in Food Security Theory, the research investigates two key dimensions: evaluating how access to farm inputs affects crop production and how investment in storage facilities has impacted post-harvest losses. Employing an ex-post facto research design within a qualitative framework, the study adopted a documentary method data collection approach. Data was analyzed using content analysis to identify, interpret, and report patterns, providing deep insights into both successes and shortcomings. The study found that the Green Alternative Agricultural Promotion Policy (APP) had significantly improved access to farm inputs and stimulated investment in storage infrastructure, leading to localized gains in crop production and partial reductions in post-harvest losses in Nigeria between 2016 and 2024. Programs such as the Anchor Borrowers' Scheme and the Presidential Fertiliser Initiative increased cultivation and boosted food crop outputs, but their effects varied across regions and crops, leaving national self-sufficiency unachieved. Investments in storage facilities helped mitigate post-harvest losses, yet they were limited by technical, financial, and operational challenges. The study recommended that the government expand access to credit, quality seeds, and fertilisers with improved targeting systems, while also investing in modernized and decentralized storage infrastructure, public-private partnerships, and technological upgrades to ensure long-term food security.

Key Words: Agriculture Promotion Policy, Food Security, Input Access, Crop Production, Storage Facilities, Post-Harvest Losses

INTRODUCTION

Food security is a fundamental prerequisite for national development, economic stability, and human wellbeing, especially in developing nations like Nigeria, where agriculture remains a critical source of livelihood and employment. Historically, agriculture served as Nigeria's economic backbone, contributing

significantly to GDP and providing employment for over 70 percent of the population while generating export revenue from crops such as cocoa, groundnut, cotton, and palm oil (Olu, Adama, & Umejiaku, 2018). However, the oil boom of the 1970s shifted national focus away from agriculture, resulting in policy neglect, rural–urban migration, and the deterioration of farming infrastructure.

Despite possessing vast arable land exceeding 84 million hectares and a vast youthful population, Nigeria has become increasingly dependent on food imports, spending over 1.3 trillion naira annually on staples such as rice, wheat, sugar, and poultry as of 2015 (CBN, 2016; Ojo & Ayanwale, 2019). This continues to make food insecurity widespread in the country, with rising food prices, and malnutrition (FAO, 2020). For instance, Nigeria ranked 103rd out of 121 countries on the Global Hunger Index in 2022 and 110th out of 127 countries in another assessment, highlighting the persistent vulnerability of its food system (Global Hunger Index, 2022; Jaiyesimi, 2025).

In response to nutritional challenges facing Nigeria, successive governments introduced various agricultural policies, including Operation Feed the Nation (1976), the Green Revolution (1980), the National Agricultural Land Development Authority (1992), and the Agricultural Transformation Agenda (2011). Many of these interventions failed to deliver lasting results due to weak monitoring, poor coordination, corruption, and inadequate engagement with smallholder farmers (Olomola, 2018). In 2016, the Federal Ministry of Agriculture and Rural Development launched the Agriculture Promotion Policy, also known as the Green Alternative, to revitalise the sector, promote food self-sufficiency, and enhance value-chain efficiency (FMARD, 2016). The policy targeted increased domestic production of staple crops such as rice, maize, cassava, soybeans, and vegetables, as well as livestock and aquaculture, alongside encouraging private-sector investment and mechanisation to improve productivity (Nwankwo & Dike, 2021).

A key element of the Green Alternative was enhancing smallholder farmers' access to critical farm inputs through schemes like the Growth Enhancement Support Scheme and the Anchor Borrowers' Programme, which provided subsidised inputs and credit facilities. Between 2016 and 2023, the Anchor Borrowers' Programme disbursed over 800 billion naira to approximately 4.8 million farmers, contributing to increased rice cultivation from 5.8 million metric tonnes in 2015 to 8.2 million metric tonnes in 2021, while reducing rice importation by 12 percent (CBN, 2023; USDA, 2022). The policy also emphasised investment in storage infrastructure to reduce post-harvest losses, addressing the substantial financial losses, estimated at over \$10 billion annually, due to poor storage and handling systems (Chibueze, 2025; Afolabi, Leonard, Osei, & Blay, 2021). These measures were intended to strengthen food security by enhancing production efficiency and reducing wastage along the supply chain.

Despite these interventions, Nigeria continues to experience persistent food insecurity, suggesting that the Green Alternative's objectives may not have been fully realised. This could be attributed to low government funding, averaging below 2 percent of the national budget between 2016 and 2020 compared with the 10 percent target under the Maputo Declaration, limited the effective provision of farm inputs, infrastructure, and storage facilities (Eze & Okonkwo, 2019). Also, inadequate storage systems have been blamed high post-harvest losses (CBN, 2023; Olomola, 2018). It is against this backdrop that this study seeks to investigate how the implementation of the Agriculture Promotion Policy (Green Alternative) has impacted on food security in Nigeria. To successfully address this subject, two key questions were put forward. First, how did the implementation of access to farm inputs under the Agriculture Promotion Policy (Green Alternative) contribute to improved crop production in Nigeria? Second, how did the promotion of

investment in storage facilities under the Agriculture Promotion Policy (Green Alternative) reduce post-harvest losses in Nigeria?

LITERATURE REVIEW

Food security is widely understood as a multidimensional concept encompassing the availability, accessibility, utilisation, and stability of food for all individuals at all times (Adebayo & 2020). Ezeh and Anyanwu (2021) emphasis that it goes beyond mere food production to include equitable access, affordability, and nutritional adequacy, highlighting the interplay of socio-economic, environmental, and institutional factors (Ezeh & Anyanwu, 2021). In the Nigerian context, food security is constrained by structural inefficiencies, regional disparities, and inadequate infrastructure, which limit both the supply and distribution of food. Environmental challenges, such as climate variability and land degradation, alongside security threats including conflicts and insurgency, further exacerbate vulnerability to hunger and malnutrition (Onyekachi & Ifeanyi, 2022; Ismail & Omotola, 2021). Additionally, persistent poverty, income inequality, and urbanisation shape patterns of food consumption, often creating a disconnect between local production and population needs, thus complicating efforts to achieve sustainable food security (Aliyu & Ekong, 2023; Umar & Chukwu, 2018).

The Agricultural Promotion Policy, commonly known as the Green Alternative Policy (2016–2024), represents Nigeria’s strategic framework to enhance agricultural productivity, reduce food import dependence, and promote rural development. Conceptually, the policy seeks to modernise agriculture through a coordinated approach that integrates value-chain development, private-sector participation, and institutional synergy (Akinyele & Ajetomobi, 2018). Its implementation prioritises staple crops and livestock with high market potential, aiming to improve access to inputs, credit, mechanisation, and storage infrastructure while stimulating agro-industrial linkages (Olomola & Nwafor, 2020; Obiora & Adekunle, 2021). However, scholars note that the policy’s effectiveness is constrained by financing gaps, weak institutional coordination, regulatory bottlenecks, and inadequate post-harvest management (Ajayi & Ojo, 2022; Enechi & Okonkwo, 2021). Despite initiatives such as the Anchor Borrowers Programme, the Green Alternative’s impact on food security has been uneven, with benefits often skewed towards larger agribusinesses, leaving smallholder farmers inadequately supported (Chukwuma & Ibeanu, 2022; Oladimeji & Musa, 2023). This conceptual understanding highlights the need to evaluate the policy’s practical contributions to crop production and post-harvest loss reduction within Nigeria’s complex agricultural landscape.

Access to essential farm inputs has long been recognised as a critical determinant of agricultural productivity in Nigeria. Constraints in the availability, affordability, and distribution of inputs such as fertilisers, improved seeds, and agrochemicals have limited smallholder farmers’ ability to achieve optimal yields (CBN, 2023; USDA, 2022). Studies indicate that despite policy efforts, small-scale farmers continue to experience gaps in input utilisation, reflecting structural weaknesses and uneven policy implementation across regions (Olomola, 2018; FMARD, 2016). These limitations are further exacerbated by demographic pressures, environmental degradation, and climate variability, highlighting the need for policies that ensure timely and equitable access to farm inputs as a strategy for enhancing domestic crop production.

Government interventions under the Agriculture Promotion Policy (Green Alternative) aimed to address these challenges through programmes such as the Growth Enhancement Support Scheme (GESS) and the Anchor Borrowers' Programme (CBN, 2023). These initiatives provided subsidised inputs and credit facilities to millions of smallholder farmers, promoting adoption of improved seeds, mechanisation, and fertiliser application. Empirical evidence suggests that these programmes contributed to increased cultivation of staple crops, particularly rice and maize, and supported improvements in yield performance (USDA, 2022). However, the effectiveness of input-focused interventions has been constrained by institutional inefficiencies, logistical challenges, and inconsistencies in programme delivery, indicating that access alone is insufficient without robust governance mechanisms.

Historical analyses reveal that Nigeria's persistent input constraints are deeply embedded within structural and institutional inconsistencies in agricultural policy. Successive interventions from the National Agricultural Technology Support Programmes to the Agricultural Transformation Agenda experienced challenges such as underfunding, politicisation of subsidies, and elite capture, which undermined equitable distribution and long-term sustainability (Olomola, 2018; Nwankwo & Dike, 2021). More recent assessments of the Green Alternative highlight partial successes in improving technology adoption and crop productivity, but also show continued regional disparities, limited credit access, and insufficient mechanisation support (FMARD, 2016; Ayinde, Otekunrin, Akinbode, & Otekunrin, 2020). Collectively, these perspectives suggest that while input provision remains a necessary condition for increased crop production, systemic governance and institutional reforms are critical for achieving sustained food security outcomes.

The issue of post-harvest losses in Nigeria underscores the importance of storage infrastructure investment in complementing production-oriented policies. Studies indicate that inadequate storage facilities, poor cold chain logistics, and the absence of effective warehouse systems contribute to substantial annual losses, estimated at billions of dollars, thereby limiting the potential benefits of increased agricultural output (Chibueze, 2025; Afolabi, Leonard, Osei, & Blay, 2021). While the Green Alternative acknowledges the importance of post-harvest management, implementation gaps have hindered its impact. Analyses of storage systems show that reliance on traditional storage methods, poor maintenance, and weak regulatory frameworks exacerbate losses and undermine market stability (CBN, 2023; USDA, 2022). These findings indicate that improving storage infrastructure is crucial for translating production gains into enhanced food availability and security.

Ultimately, literature on the Green Alternative demonstrates that achieving food security in Nigeria requires coordinated efforts addressing both production and post-harvest challenges. While programmes enhancing access to farm inputs have improved yields in certain regions, systemic issues such as funding gaps, administrative inefficiencies, and uneven institutional capacity persist (FMARD, 2016; Olomola, 2018). Similarly, investments in storage infrastructure remain insufficient to significantly reduce post-harvest losses, limiting the overall impact on national food security (Chibueze, 2025; Afolabi et al., 2021). These gaps underscore the need for this study, which seeks to evaluate how the implementation of the Agriculture Promotion Policy (Green Alternative) has influenced crop production and post-harvest loss mitigation, thereby informing strategies for sustainable food security in Nigeria between 2016 and 2024.

THEORETICAL FRAMEWORK

This study is anchored in Food Security Theory, which provides a comprehensive framework for understanding the conditions under which individuals and communities can reliably access sufficient, safe, and nutritious food. Originating from post–World War II analyses of famines such as the Bengal famine of 1943, the theory initially linked food security to national food availability, assuming that higher production or imports would automatically ensure adequate nutrition (Maxwell & Smith, 1992). Persistent hunger in regions with adequate food stocks, however, revealed the limitations of this narrow approach, highlighting the importance of social, economic, and institutional factors in shaping food access (Barrett, 2010). The FAO’s 1996 definition marked a paradigm shift, framing food security as dependent not only on availability but also on physical, social, and economic access and proper utilisation of food (FAO, 1996). Amartya Sen’s entitlement approach further emphasised that food insecurity often arises from individuals’ inability to command food rather than from absolute scarcity (Sen, 1981; Drèze & Sen, 1989). Contemporary food security theory thus integrates four key dimensions – availability, access, utilisation, and stability, recognising that disruption in any of these areas, due to economic shocks, environmental changes, or institutional weaknesses, can undermine overall food security and necessitate resilient, integrated policy responses (Pinstrup-Andersen, 2009; FAO, 2008).

Food security theory, provides a useful framework for evaluating the Agriculture Promotion Policy (Green Alternative) and its efforts to strengthen Nigeria’s food system. By improving farmers’ access to essential inputs such as fertilisers, improved seeds, and credit, the policy directly targeted the *availability* and *access* dimensions, as increased input use enhances productivity and expands the volume of food physically present within the system. At the same time, the policy’s focus on investing in storage infrastructure aligns with the *stability* component of the theory, as effective storage reduces the volatility caused by post-harvest losses, seasonal shortages, and market fluctuations. By preventing spoilage and maintaining food quality, improved storage also supports the *utilisation* dimension, ensuring that food remains safe and nutritious for consumption. Through these mechanisms, the Green Alternative sought to strengthen multiple pillars of food security simultaneously, demonstrating how targeted interventions in production and post-harvest management can collectively contribute to a more resilient and food-secure Nigeria.

RESEARCH METHOD

The study employed an ex-post facto research design situated within a qualitative research framework. This design is suited to investigations in which events have already unfolded and cannot be manipulated, making it appropriate for assessing the Agriculture Promotion Policy (Green Alternative), implemented between 2016 and 2020, and broader food security outcomes in Nigeria up to 2024. Data for the study were obtained using a documentary method, relying on secondary sources such as official publications from the Central Bank of Nigeria and the National Bureau of Statistics, ministerial policy documents, and reputable media reports, ensuring a comprehensive understanding of the policy and its implications. For data analysis, the study adopted content analysis, a systematic method for interpreting and categorising patterns, themes, and relationships within qualitative materials, including policy documents and reports (Hecker & Kalpokas, 2025). Through this method, the study identifies recurring themes and evidence of change, thereby offering a grounded assessment of the policy’s effectiveness in enhancing crop production, reducing post-harvest losses, and improving overall food security in Nigeria.

DISCUSSION OF FINDINGS

Implementation of Access to Farm Inputs Under the Agriculture Promotion Policy (Green Alternative) and Improvement of Nigeria's Crop Production Capacity

The Agriculture Promotion Policy (2016–2020), widely referred to as the Green Alternative, formed part of the Federal Government's strategic effort to reposition agriculture as the core driver of the national economy and a major contributor to the Gross Domestic Product (GDP). Through the Federal Ministry of Agriculture and Rural Development, the government introduced a range of measures intended to curb the growing dependence on food imports and encourage increased domestic production of key staples such as rice, wheat, and dairy products (The Nation, 2017). To support these objectives, the Ministry undertook initiatives to ensure that farmers gained improved access to essential agricultural inputs, particularly financial resources needed to enhance their productive capacity. One of the major steps in this direction was securing the collaboration of the Central Bank of Nigeria (CBN) to implement the Anchor Borrowers' Scheme (ABS), which provided funding to smallholder farmers, especially those engaged in rice and wheat production. Over the course of the Green Alternative Policy, the scheme broadened its coverage to include a wider range of farmers across various agricultural activities. The Anchor Borrowers' Programme is fundamentally designed to accelerate rural farmers' access to credit and strengthen their productivity (The Nation, 2017).

Table 1: Funds Disbursed by CBN to Farmers Under the Anchor Borrowers' Scheme

Year	No. of Anchors	No. of Farmers	No. of Hectares	Total Disbursement (₦ Billion)
2015–2016	31	127,068	161,323	26.998
2017	44	129,709	134,231	27.500
2018	194	646,213	640,422	118.960
2019	36	582,519	668,367	102.030
2020	6	892,893	1,510,153	210.000
Total	311	2,378,402	3,114,496	485.488

Source: CBN (2017, 2018, 2019, 2020, 2023)

Table 1 shows a substantial growth in both the number of farmers supported and the total disbursement by the Central Bank of Nigeria (CBN) to farmers under the Anchor Borrowers' Scheme from 2015 to 2020, with the figures rising from ₦26.998 billion in 2015–2016 to ₦210 billion in 2020. Correspondingly, the number of hectares cultivated expanded from 161,323 to 1,510,153, reflecting increased scale and coverage of the program. Notably, the highest disbursement and farm coverage occurred in 2020 despite a smaller number of anchor companies, suggesting greater efficiency or concentration of funding per farmer.

Table 2: Top 10 Beneficiary Anchors of the Programme of CBN by Amount Disbursed

Rank	Anchor	Amount Disbursed (₦ billion)	Farmers Reached	Hectares Approved	Amount Repaid (₦ billion)	Outstanding Balance (₦ billion)
1	RIFAN	283.01	1,518,603	1,403,990	137.24	145.77
2	AFEX COMMODITIES	169.27	483,476	865,258	103.10	66.17
3	MAAN	92.43	477,638	606,870	65.37	27.06

4	THRIVE AGRIC	92.07	305,000	501,000	64.54	27.53
5	NACOTAN	57.87	354,941	370,617	39.15	18.71
6	WFAN	30.31	100,240	100,240	5.95	24.36
7	NECAS	29.36	107,205	202,175	12.27	17.08
8	MAGPAMAN	20.07	105,031	105,033	12.73	7.34
9	KEBBI STATE GOVT	17.78	91,323	90,772	9.62	8.16
10	COPMAN	15.56	85,703	85,703	11.21	4.24

Source: Udi (2024)

Between 2016 and 2022, cumulative disbursements under the programme amounted to ₦485.488 billion, supporting more than 2.3 million maize, rice, and wheat farmers and covering over 3.1 million hectares (CBN, 2023; Udi, 2024).

A major constraint on crop production during this period was the escalating cost of fertiliser, a critical input for Nigerian farmers, with the price of NPK rising to about ₦11,000 in 2016 and urea selling for roughly ₦7,500 (The Nation, 2017). These price increases contributed to higher food costs and limited farmers' access to essential inputs, prompting the government to introduce measures to encourage local blending. However, persistent bottlenecks necessitated the establishment of the Presidential Fertiliser Initiative in 2016, implemented through the Fertiliser Producers and Suppliers Association of Nigeria (FEPSAN) and the Federal Ministry of Agriculture and Rural Development, with the aim of improving the efficiency of the NPK 20:10:10 supply chain and reducing dependence on imported fertiliser (The Nation, 2017).

Table 3: Fertilizer Production and Supply Under the Presidential Fertilizer Initiative (PFI)

Year / Period	Key Activity / Milestone	Fertilizer Plants	Fertilizer Production / Supply	Fertilizer Price	Jobs Created	Other Impacts
2016	Launch of Presidential Fertilizer Initiative (PFI)	4 operational blending plants	NPK 20:10:10 fertilizer supply chain inefficiencies targeted	N/A	N/A	N/A
2017–2020	PFI implementation	41 blending plants resuscitated across 17 states	Over 30 million bags of NPK 20:10:10 produced	Reduced from >₦10,000 to <₦5,500 per bag	~250,000 direct & indirect jobs	Foreign exchange savings >US\$350 million from subsidy and import substitution
2022	Expansion under PFI	Over 62 operational blending plants	Over 60 million 50kg bags produced	N/A	N/A	N/A
July 2025	Further expansion	90 operational blending plants	Over 128 million bags of high-quality blended	N/A	Over 100,000 direct & indirect jobs	N/A

			fertilizer delivered			
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Source: Nigeria Sovereign Investment Authority (2021), Ewepu (2022), Tunji (2025)

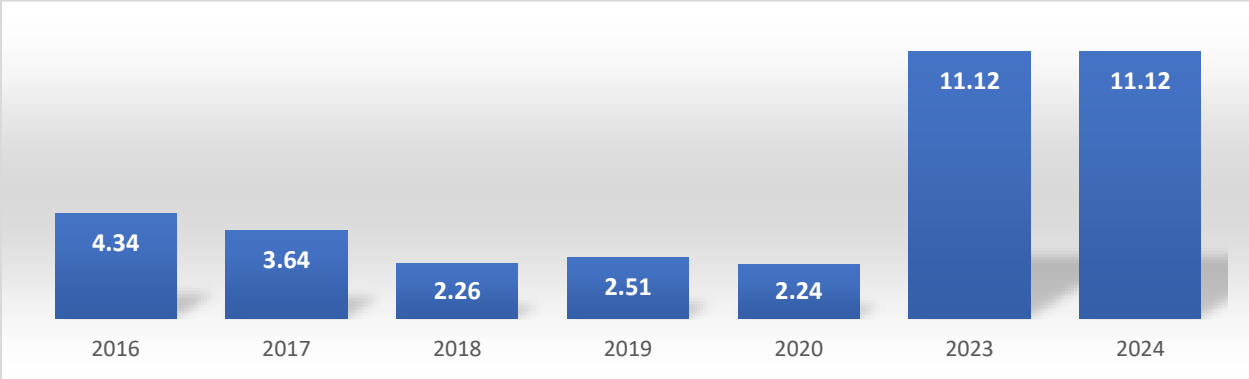
The Presidential Fertiliser Initiative (PFI) expanded Nigeria’s operational blending plants from four in 2016 to more than 62 by 2022, producing over 60 million 50 kg bags, and further rising to 90 plants by July 2025 (Ewepu, 2022; Tunji, 2025). In its first four years (2017–2020), more than 30 million bags of NPK 20:10:10 equivalent were produced, contributing to a drop in fertiliser prices from above ₦10,000 to below ₦5,500 per bag, while 41 blending plants across 17 states were revived from the initial four at inception (Nigeria Sovereign Investment Authority, 2021). These developments generated an estimated 250,000 direct and indirect jobs across areas such as logistics, ports, rail, warehousing, bagging, and haulage, alongside foreign exchange savings exceeding US\$350 million through reduced subsidy payments and import substitution (Nigeria Sovereign Investment Authority, 2021). By July 2025, output had reached more than 128 million bags of blended fertiliser, with the initiative creating over 100,000 additional direct and indirect jobs (Tunji, 2025). Despite these interventions, particularly the Anchor Borrowers’ Scheme of the Central Bank of Nigeria (CBN) and the PFI aimed at improving farmers’ access to essential inputs, Nigeria’s broader crop production performance remains relatively modest, even though notable gains have been achieved in specific areas.

Table 4: Nigeria’s Crop Production Growth (2016-2020)

Year	Crop Production Growth (%)
2016	4.34
2017	3.64
2018	2.26
2019	2.51
2020	2.24
2021	No data
2022	No data
2023	11.12
2024	11.12

Source: Ukpe (2021), Nigeria Bureau of Statistics (2019, 2025)

Chart 1: Nigeria’s Crop Production Growth (2016-2020) (%)



Source: Researcher (2025)

The data in Table 4 and Chart 1 show that crop production growth declined during the Agriculture Promotion Policy (“Green Alternative,” 2016–2020) period, falling from 4.34 per cent in 2016 to 2.24 per cent in 2020, despite federal government efforts to scale up input provision for farmers. In contrast, the post-policy era (2023 and 2024) recorded a sharp rise in crop production, with growth reaching 11.12 per cent in both years. This suggests that the cumulative effects of the APP’s input-focused investments, particularly through the Central Bank of Nigeria’s Anchor Borrowers’ Scheme and the Presidential Fertilizer Initiative, together with subsequent post-policy interventions and favourable market conditions, helped unlock stronger output gains.

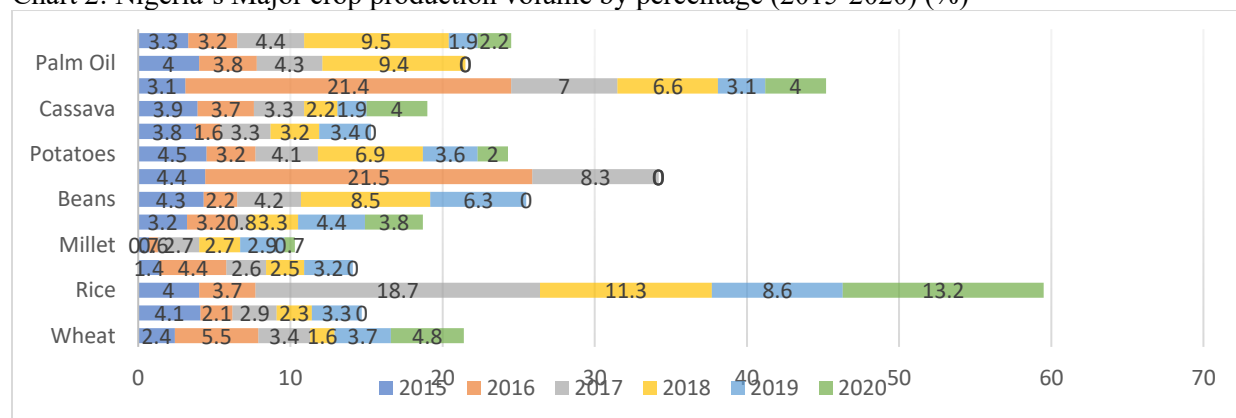
Also, available data showed that the production of some major crops in Nigeria witnessed some improvement, though the impact was uneven during the implementation phase of the Agriculture Promotion Policy (Green Alternative) (2016-2020).

Table 5: Nigeria’s Major crop production volume by percentage (2015-2020)

Crop	2015 (%)	2016 (%)	2017 (%)	2018 (%)	2019 (%)	2020 (%)	% Total
Wheat	2.4	5.5	3.4	1.6	3.7	4.8	21.4
Sorghum	4.1	2.1	2.9	2.3	3.3	0	14.7
Rice	4.0	3.7	18.7	11.3	8.6	13.2	59.5
Maize	1.4	4.4	2.6	2.5	3.2	0	14.1
Millet	0.7	0.6	2.7	2.7	2.9	0.7	10.3
Soya-Bean	3.2	3.2	0.8	3.3	4.4	3.8	18.7
Beans	4.3	2.2	4.2	8.5	6.3	0	25.5
Plantain	4.4	21.5	8.3	-	-	0	34.2
Potatoes	4.5	3.2	4.1	6.9	3.6	2.0	24.3
Yam	3.8	1.6	3.3	3.2	3.4	0	15.3
Cassava	3.9	3.7	3.3	2.2	1.9	4.0	19.0
Rubber	3.1	21.4	7.0	6.6	3.1	4.0	45.2
Palm Oil	4.0	3.8	4.3	9.4	-	-	21.5
Cocoa	3.3	3.2	4.4	9.5	1.9	2.2	24.5

Source: CBN (2017, 2018, 2019, 2020, 2023, 2024)

Chart 2: Nigeria’s Major crop production volume by percentage (2015-2020) (%)



Source: Researcher (2025)

As shown in Table 5 and Chart 2, crops such as rice (with strong annual increases peaking at 18.7% in 2017 and remaining high at 13.2% in 2020), plantain (notable rise in 2016), rubber, and cocoa recorded

substantial gains, reflecting how input support and policy incentives boosted adoption of improved varieties and expanded cultivation. Meanwhile, crops like sorghum, maize, beans and yam experienced inconsistent growth.

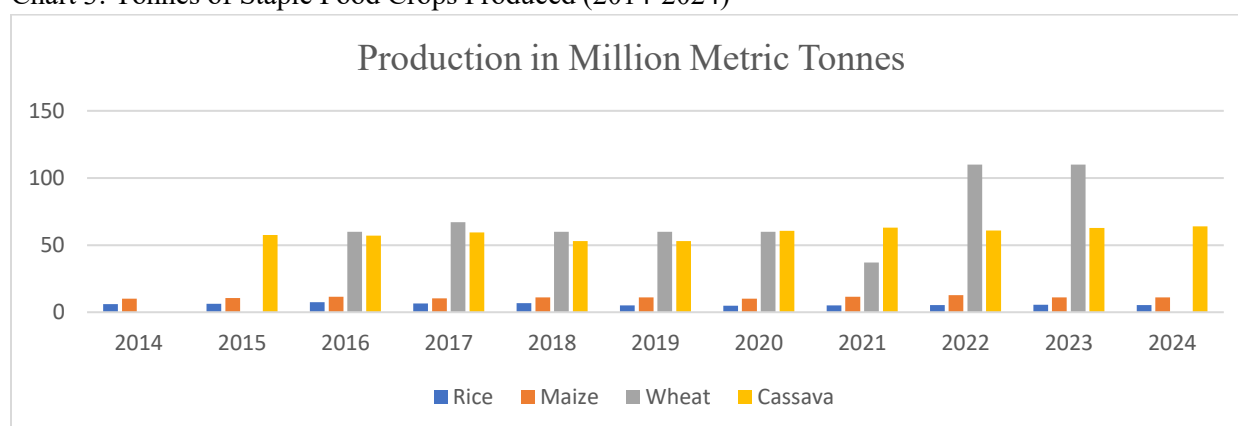
Furthermore, a mixed but gradually strengthening effects were recorded on some staple crop production such as rice, maize, and wheat, as seen in Table 6 and Chart 3. Rice paddy production initially increased from 6.0 million metric tonnes (mmt) in 2014 to 7.5 mmt in 2016, before dropping to 6.61 mmt in 2017 and fluctuating in subsequent years, reaching 5.23 mmt in 2024 (Mojeed, 2020; Mojeed, 2022; Ekott, 2025). Despite these variations, Nigeria maintained its status as Africa’s leading rice producer during the 2014–2019 period (Mojeed, 2020).

Table 6: Tonnes of Staple Food Crops Produced (2014-2024)

Year	Rice Production (million metric tonnes)	Maize Production (million metric tonnes)	Wheat Production (thousand metric tonnes)	Cassava Production (million metric tonnes)
2014	6.0	10.1	—	—
2015	6.2	10.6	—	57.6
2016	7.5	11.6	60,000	57.1
2017	6.61	10.4	67,000	59.4
2018	6.81	11.0	60,000	53.0
2019	5.1	11.0	60,000	53.0
2020	4.89	10.0	60,000	60.6
2021	5.0	11.6	36,943	63.0
2022	5.41	12.7	110,000 (proj.)	60.84
2023	5.61	11.0	110,000 (proj.)	62.7
2024	5.23	11.0	—	63.889

Source: Eze et al. (2020), Ibiroga (2020), Mojeed (2020), Ekott (2021), Mojeed and muktar (2021), Odifa (2023), FOA (2023) Federal Ministry of Agriculture and Food Security (2024), Otekunrin (2024), Ekott (2025), Milling Middle East and Africa (2025), Okojie (2025), Reporter Link (2025)

Chart 3: Tonnes of Staple Food Crops Produced (2014-2024)



Source: Researcher (2025)

Maize production in Nigeria showed considerable fluctuation, increasing from 10.1 mmt in 2014 to 11.6 mmt in 2016, dipping in 2017, and then reaching a high of 12.7 mmt in the 2022/2023 season before falling to 11.0 mmt in 2023/2024 (Mojeed & Muktar, 2021; Ekott, 2025; USDA, 2024; Milling Middle East &

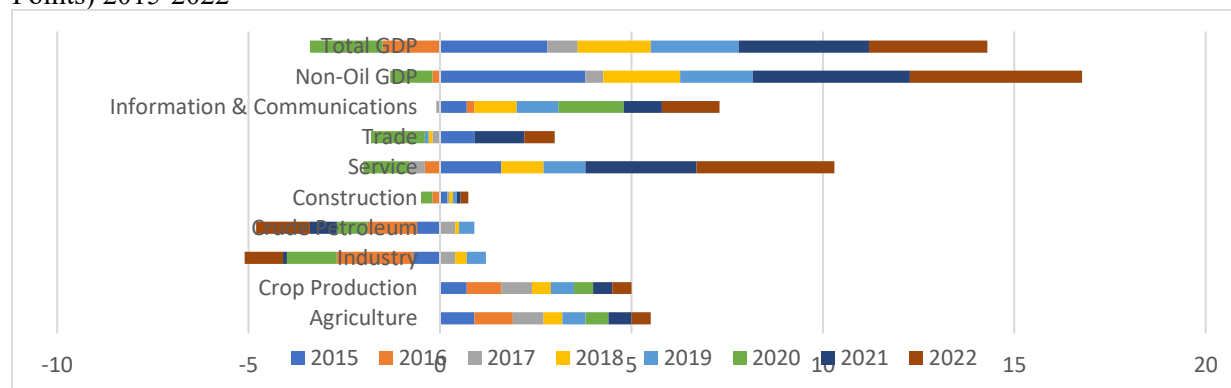
Africa, 2025). Wheat output remained comparatively low, rising slightly from 60,000 MT in 2016 to 67,000 MT in 2017, holding around 60,000 MT until 2020, then dropping to 36,943 MT in 2021, though forecasts suggested an increase to 110,000 MT by 2022–2023 (Ekott, 2021; Nwadi & Okonkwo, 2023; Odifa, 2023). Cassava production, however, displayed more consistent growth, rising to 57.6 million tonnes in 2015, dipping marginally in 2016, and climbing to 59.4 million tonnes in 2017, reaffirming Nigeria's status as the world's leading cassava producer (Ikedionu, 2018; Federal Ministry of Agriculture and Food Security, 2024). Substantial output levels continued, with 53 million tonnes in 2018/2019, 60.6 million tonnes in 2020, and 63 million tonnes in 2021, followed by 60.84 million tonnes in 2022, 62.7 million tonnes in 2023, and 63.889 million tonnes in 2024 (Ibirogbu, 2020; Eze et al., 2020; Otekunrin, 2024; FAO, 2023; Okojie, 2025; Reporter Link, 2025). These patterns show that although cereal production experienced notable variability, cassava output maintained an upward trajectory, highlighting its central role in Nigeria's agricultural performance. Crop production also remained a key driver of national economic activity, contributing between 0.5 and 0.9 percentage points annually to GDP from 2015 to 2022, thereby demonstrating greater stability than many sub-sectors within the industrial and services domains.

Table 7: Sectoral Contributions to Growth Rates of GDP at 2010 Constant Basic Prices (By Percentage Points) 2015-2022

Activity Sector	2015 (%)	2016 (%)	2017 (%)	2018 (%)	2019 (%)	2020 (%)	2021 (%)	2022 (%)
Agriculture	0.9	1.0	0.8	0.5	0.6	0.6	0.6	0.5
** Crop Production**	0.7	0.9	0.8	0.5	0.6	0.5	0.5	0.5
Industry	-0.7	-2.0	0.4	0.3	0.5	-1.3	-0.1	-1.0
** Crude Petroleum**	-0.6	-1.3	0.4	0.1	0.4	-0.8	-0.7	-1.4
** Construction**	0.2	-0.2	0.04	0.1	0.1	-0.3	0.1	0.2
Service	1.6	-0.4	-0.4	1.1	1.1	-1.2	2.9	3.6
** Trade**	0.9	0.0	-0.2	-0.1	-0.1	-1.4	1.3	0.8
** Information & Communications**	0.7	0.2	-0.1	1.1	1.1	1.7	1.0	1.5
Non-Oil GDP	3.8	-0.2	0.47	2.0	1.9	-1.1	4.1	4.5
Total (GDP)	2.8	-1.5	0.8	1.9	2.3	-1.9	3.4	3.1

Source: CBN (2017, 2018, 2019, 2020, 2023, 2024)

Chart 4: Sectoral Contributions to Growth Rates of GDP at 2010 Constant Basic Prices (By Percentage Points) 2015-2022



Source: Researcher (2025)

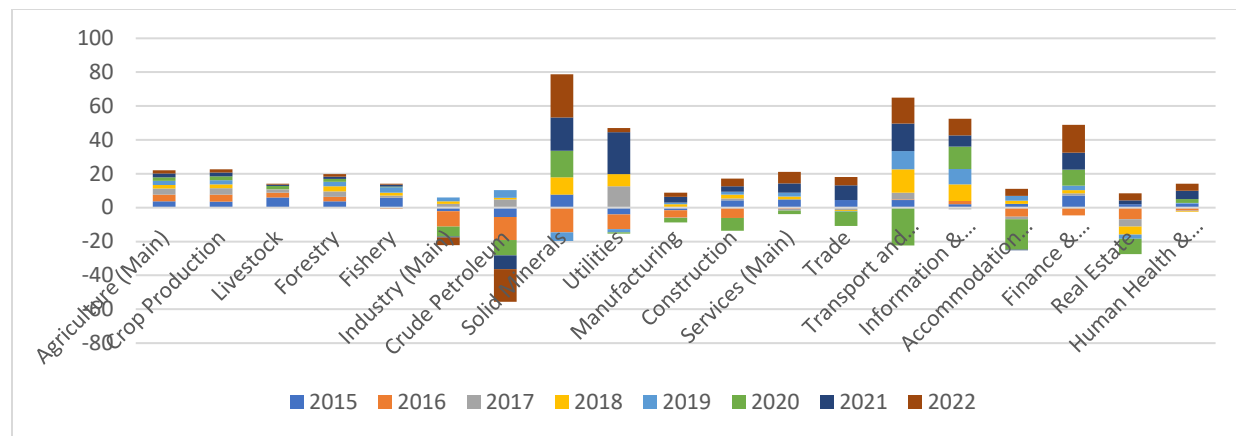
On the other hand, the sectoral growth rates as seen in Table 8 and Chat 5 and 6, show that crop production expanded steadily at 2.0–4.3% per annum, supporting the agricultural sector’s resilience amid declines in livestock, fisheries, and forestry sub-sectors. While industry and services displayed more erratic patterns due to oil price shocks, non-oil GDP growth benefited from the steady output of crop production, highlighting its stabilizing role in the economy. The data suggest that crop production not only sustained agriculture’s contribution to GDP but also cushioned overall economic growth during periods of downturn, particularly in 2016, 2020, and 2022.

Table 8: Sectoral Growth Rates of GDP at 2010 Constant Basic Prices (By Percentage Points) 2015-2022

Activity Sector	2015	2016	2017	2018	2019	2020	2021	2022
Agriculture Sector	3.7	4.1	3.5	2.1	2.4	2.2	2.1	1.9
Crop Production	3.5	4.3	3.6	2.3	2.5	2.2	2.3	2.0
Livestock	6.0	2.9	1.6	0.3	0.2	1.9	0.6	0.6
Forestry	3.7	2.6	3.3	3.1	2.6	1.6	1.4	1.6
Fishery	5.9	-0.7	1.3	1.6	3.3	0.3	1.2	0.5
Sum of agriculture sub-sectors	19.1	9.1	9.8	7.3	8.6	6.0	5.5	4.7
Industry Sector	-2.2	-9.0	2.2	1.6	2.3	-5.9	-0.5	-4.6
Crude Petroleum	-5.5	-13.7	4.8	1.0	4.6	-8.9	-8.3	-19.2
Solid Minerals	7.7	-14.6	0.1	10.1	-5.0	15.7	19.7	25.5
Utilities	-4.0	-8.7	12.6	7.3	-1.9	-0.8	24.6	2.6
Manufacturing	-1.5	-4.3	-0.2	2.1	0.8	-2.8	3.4	2.5
Construction	4.4	-6.0	1.0	2.3	1.8	-7.7	3.1	4.5
Sum of industry sub-sectors (arithmetic)	1.1	-47.3	18.3	22.8	0.3	-4.5	42.5	13.9
Services Sector	4.8	-0.8	-0.9	1.8	2.2	-2.2	5.6	6.7
Trade	4.5	-0.2	-1.1	-0.6	-0.4	-8.5	8.6	5.1
Transport and Storage	4.5	0.4	3.9	13.9	10.7	-22.3	16.3	15.2
Information & Communications	2.0	2.0	-1.0	9.7	9.2	13.2	6.6	9.8
Accommodation & Food Services	2.3	-5.3	-1.6	1.8	2.9	-17.8	-0.5	4.2
Finance & Insurance	7.1	-4.5	1.3	2.0	2.6	9.4	10.1	16.4
Real Estate	2.1	-6.9	-4.3	-4.7	-2.4	-9.2	2.3	4.0
Human Health & Social Services	2.5	-1.8	-0.3	-0.3	0.3	2.2	4.9	4.2
Sum of services sub-sectors	26.9	-16.9	-3.7	22.0	22.9	-33.1	43.9	60.4
Sum of main sectors (Agriculture + Industry + Construction + Trade + Services)	15.2	-11.9	4.7	7.2	8.3	-22.1	18.9	13.6
Total (GDP)	2.8	-1.5	0.8	1.9	2.3	-1.9	3.4	3.1
Oil GDP	-5.5	-14.5	4.7	1.0	4.6	-8.9	-8.3	-19.2
Non-Oil GDP	3.8	-0.2	0.5	2.0	2.1	-1.3	4.4	4.8

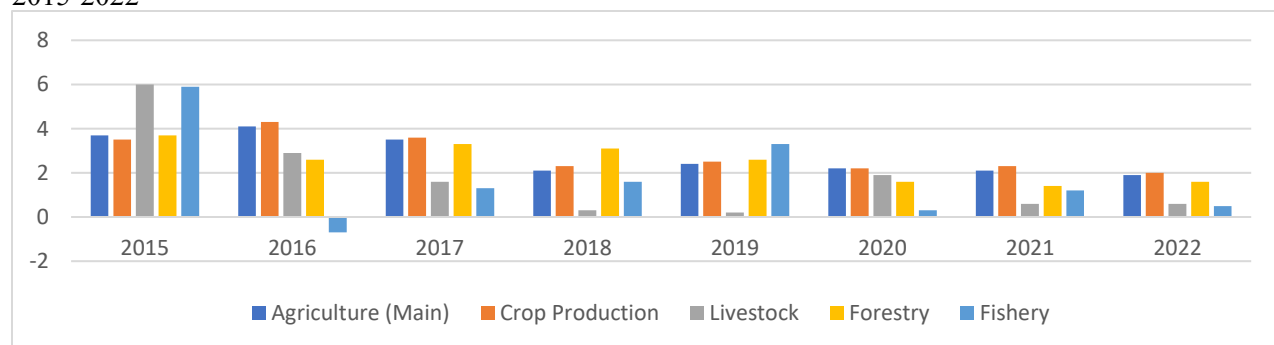
Source: CBN (2017, 2018, 2019, 2020, 2023, 2024)

Chart 5: Sectoral Growth Rates of GDP at 2010 Constant Basic Prices (By Percentage Points) 2015-2022



Source: Researcher (2025)

Chart 6: Agriculture Sector Growth Rates of GDP at 2010 Constant Basic Prices (By Percentage Points) 2015-2022



Source: Researcher (2025)

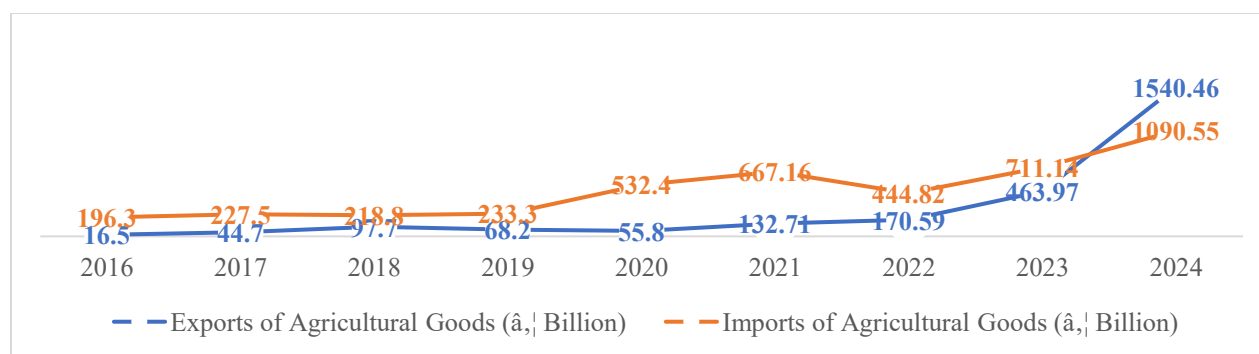
While some progresses were made in crop production because of government interventions that facilitated input access by farmers, such progress could not bridge the widening gap between Nigeria's agricultural export and import from the launch of the Agriculture Promotion Policy (Green Alternative) in 2016 up till its official closure in 2020, and beyond. With the period understudy, Nigeria's trade balance in the agriculture sector, with the exception of 2024, has remained on the deficit, with wide fluctuations recorded between exports and imports across successive fourth quarters.

Table 9: Nigeria's Annual Agricultural Export and Import (2016-2024)

Year	Exports of Agricultural Goods (₦ Billion)	Imports of Agricultural Goods (₦ Billion)
2016	16.5	196.3
2017	44.7	227.5
2018	97.7	218.8
2019	68.2	233.3
2020	55.8	532.4
2021	132.71	667.16
2022	170.59	444.82
2023	463.97	711.14
2024	1,540.46	1,090.55

Source: NBS (2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025)

Chart 7: Nigeria's Annual Agricultural export and import (2016-2024) in Billions of Naira



Source: Researcher (2025)

In 2017, agricultural exports rose sharply to ₦44.7 billion, marking a 170.9% increase from 2016, while imports reached ₦227.5 billion, a 15.9% rise from the prior year (NBS, 2017, 2018). By Q4 2018, exports climbed to ₦97.7 billion, whereas imports totalled ₦218.8 billion, representing 6.11% of overall imports during the period (NBS, 2019). In 2019, export earnings fell to ₦68.2 billion, while imports increased to ₦233.3 billion (NBS, 2020). A further decline in exports occurred in Q4 2020 with a value of ₦55.8 billion against significantly higher imports of ₦532.4 billion (NBS, 2021). The trend reversed in 2021 as exports rose to ₦132.71 billion, though imports remained substantial at ₦667.16 billion (NBS, 2022). Exports improved further to ₦170.59 billion in Q4 2022, while imports declined to ₦444.82 billion (NBS, 2023). In 2023, exports surged to ₦463.97 billion, contrasting with a higher import bill of ₦711.14 billion (NBS, 2024). By Q4 2024, exports reached an unprecedented ₦1,540.46 billion, surpassing imports, which stood at ₦1,090.55 billion (NBS, 2025).

Nigeria's persistent agricultural trade deficits across most years, aside from the improvement observed in 2024, suggest limited progress toward one of the core objectives of the Green Alternative Policy, which is enhancing domestic production and strengthening agricultural exports, particularly in food crops. These shortfalls are partly linked to insufficient investment in the sector, which has constrained efforts to scale up existing farmers' capacity and limited the ability to attract new entrants, especially young people, into agricultural production.

The amount of Nigeria's government budgetary allocation to the agricultural sector is indicative of the quantity and quality of national commitment to agricultural development that will guarantee food security through improved crop production. The Food and Agriculture Organisation (FAO) recommended that 25 per cent of government capital budget be allocated to agricultural development. Nigeria has also consistently failed to reach the 10 per cent agriculture budget standard of the Maputo Declaration, which has led to negative implications for food security (Akpa, 2021). Since 2016, federal budgetary allocations to the Ministry of Agriculture have been far and abysmally below the recommended benchmark of 25 per cent by Food and Agriculture Organisation (FAO) and 10 per cent Maputo Declaration. This has made the actualisation of food security difficult in Nigeria.

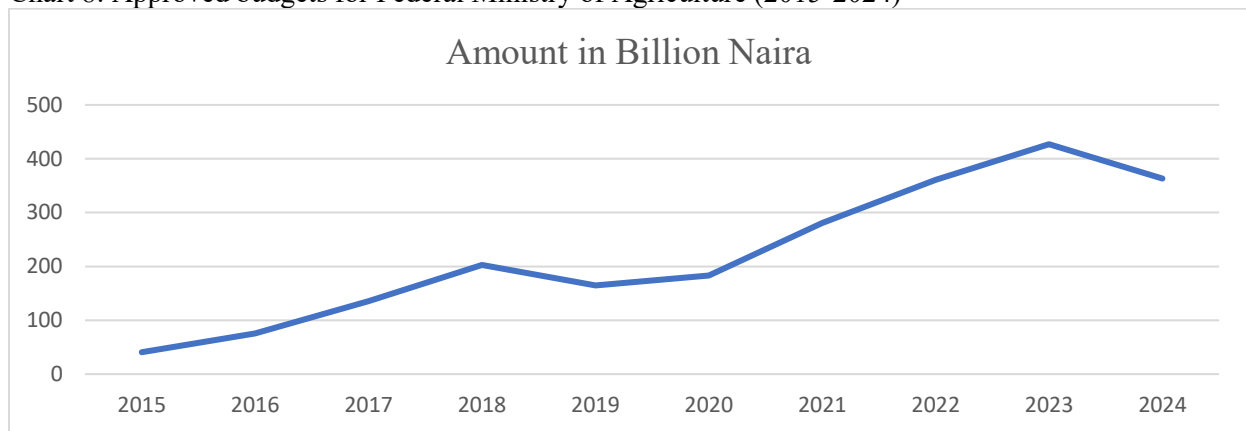
Table 10: Approved budgets for Federal Ministry of Agriculture (2015-2024)

Year	Total Federal Budget (₦)	Agriculture (₦) (%)
2015	4.49 trillion	40.65 billion (0.09%)
2016	6.06 trillion	75.80 billion (1.25%)
2017	7.44 trillion	135.54 billion (1.82%)

2018	9.12 trillion	203.01 billion (2.23%)
2019	8.92 trillion	164.9 billion (1.85%)
2020	10.59 trillion	183.08 billion (1.73%)
2021	13.58 trillion	280.31 billion (2.06%)
2022	17.12 trillion	360.84 billion (1.33%)
2023	21.83 trillion	426.98 billion (1.96%)
2024	28.78 trillion	362.94 billion (1.26%)
Total	₦127.03 trillion	₦2.23 trillion

Source: BudgIT (2019), Budget Office of the Federation (2025)

Chart 8: Approved budgets for Federal Ministry of Agriculture (2015-2024)



Source: Researcher (2025)

The data in Table 10 and Chart 8, show that although Nigeria's overall federal budget grew steadily between 2015 and 2024, allocations to the Federal Ministry of Agriculture did not keep pace proportionally. Agricultural spending rose in absolute terms, from ₦40.65 billion in 2015 to a peak of ₦426.98 billion in 2023, but its share of the national budget fluctuated and remained consistently low, rarely exceeding 2%. This pattern suggests that despite increased national expenditure, agriculture did not receive a sustained prioritization in line with its strategic importance to food security and economic diversification.

Promotion of Investment in Storage Facilities Under the Agriculture Promotion Policy (Green Alternative) and Reduction in Post-Harvest Losses in Nigeria

Nigeria, with an estimated population of about 201 million people, is the most populous nation in Africa and the seventh largest globally (Federal Ministry of Agriculture and Rural Development, 2023). As population growth increases pressure on food demand, the country must adopt deliberate strategies to safeguard harvests and maintain sufficient reserves to meet nutritional needs throughout the year. In line with the Green Alternative Policy, the Federal Government has invested in building silo complexes designed to store grains against shortages, emergencies, and seasonal fluctuations. These facilities form a key component of the National Strategic Grains Reserve, which seeks to maintain strategic food stocks, stabilize market prices, and support effective buffer stock management (Akinselure, 2024).

Efforts to strengthen national food storage began in 1987 when the Federal Government introduced a three-tier system comprising On-Farm Storage, Buffer Stock, and the Strategic Grains Reserve, now referred to as the Strategic Food Reserve, to enhance emergency response and protect vulnerable populations. That year, five silo complexes of 25,000MT each were established, alongside an additional 11,000MT facility, bringing the initial total capacity to 136,000MT. Several of these silos have operated since 1992 with varying levels of effectiveness in stabilizing prices and addressing crisis situations (Federal Ministry of Agriculture and Rural Development, 2023).

Table 11: Current Distribution and Locations of Strategic Food Reserves Silos in Nigeria on a Geo-political Zonal basis

Geo-Political Zone	Concessioned Silo (MT)	FGN Retained Silo (MT)	Completed & yet to be either concessional or operational (MT)	Silos with Challenges (MT)	Total Capacity (MT)
North-Central	161,000 (68.2%)	50,000 (21.2%)	25,000 (10.6%)	0 (0%)	236,000
North-East	25,000 (9.1%)	25,000 (9.1%)	50,000 (18.2%)	175,000 (63.6%)	275,000
North-West	200,000 (61.5%)	125,000 (38.5%)	0 (0%)	0 (0%)	325,000
South-East	50,000 (33.3%)	0 (0%)	0 (0%)	100,000 (66.7%)	150,000
South-South	25,000 (16.7%)	25,000 (16.7%)	0 (0%)	100,000 (66.7%)	150,000
South-West	175,000 (87.5%)	25,000 (12.5%)	0 (0%)	0 (0%)	200,000
TOTAL	636,000 (47.6%)	225,000 (16.8%)	75,000 (5.6%)	400,000 (30.0%)	1,336,000

Source: Federal Ministry of Agriculture and Rural Development (2023)

Under the Agriculture Promotion Policy (Green Alternative), one of federal government objective is to reduce post-harvest losses through investment and proper management of food storages. Presently, the country a total of thirty-three (33) Strategic Food Reserve Silos complexes with a potential combined capacity of 1.336 million MT upon full completion. This is complemented by 51 warehouses providing an additional 108,000MT of storage (Federal Ministry of Agriculture and Rural Development, 2023; Akinselure, 2024). As seen in Table 11, the northern zones, particularly the North-West and North-Central, held the largest operational storage capacities, reflecting their central role in national grain production. In contrast, the South-East and South-South had significant portions of their capacities classified as “silos with challenges,” limiting their contribution to national reserves despite having completed infrastructure. The North-East also faced major operational difficulties, with more than half of its total capacity tied up in non-functional silos.

Table 12: Silo Complexes Under Federal Government of Nigeria Control

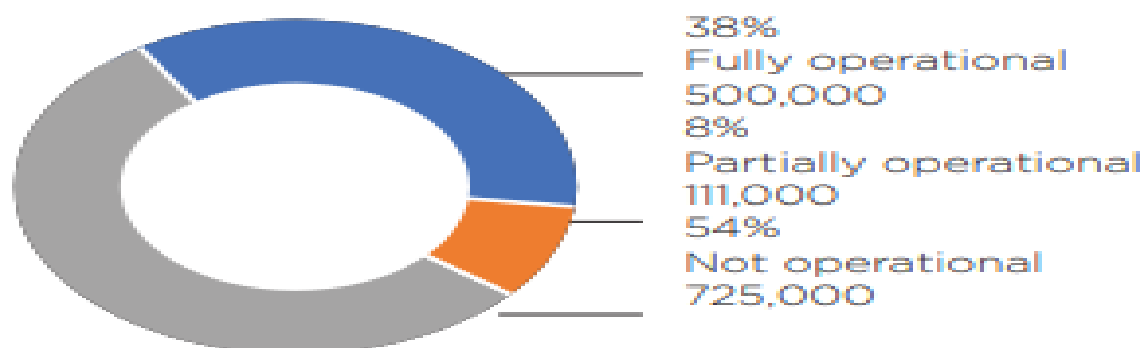
S/N	Silo Location	Storage Capacity (MT)	Year of Completion / Status	Ownership	Source of Stored Produce	Remark
1	Ilesha, Osun State	25,000	2015	Government retained	Contract with LBA's to supply	Operational
2	Minna, Niger State	25,000	1991	Government retained	Contract with LBA's to supply	Operational
3	Dutsin-Ma, Katsina State	25,000	2013	Government retained	Contract with LBA's to supply	Operational
4	Gusau, Zamfara State	100,000	2014	Government retained	Contract with LBA's to supply	Operational
5	Yola, Adamawa State	25,000	2016	Government retained	Contract with LBA's to supply	Operational
6	Lokoja, Kogi State	25,000	2019	Government retained	Contract with LBA's to supply	Completed but not operational
7	Lafia, Nasarawa State	25,000	2017	Government retained	Contract with LBA's to supply	Operational
8	Bauchi, Bauchi State	25,000	2019	Planned for Phase 2 Concession Programme	Not Applicable	Completed but suffered windstorm damage
9	Ilorin, Kwara State	25,000	2006	Planned for Phase 2 Concession Programme	Not Applicable	Under rehabilitation
10	Irrua, Edo State	25,000	1991	Planned for Phase 2 Concession Programme	Not Applicable	Operational, rehabilitated but not test-run
11	Maiduguri, Borno State	100,000	Ongoing - Over 90% completed	-	-	Work stalled due to insurgency
12	Uyo, Akwa Ibom State	25,000	Ongoing - Over 90% completed	-	-	-
13	Jalingo, Taraba State	25,000	Ongoing - Over 80% completed	-	-	Suffered civil disturbance damage
14	Okigwe, Imo State	100,000	Ongoing - 70% completed	-	-	-
15	Damaturu, Yobe State	25,000	Ongoing - Over 70% completed	-	-	Work stalled due to insurgency

16	Yenagoa, Bayelsa State	100,000	Ongoing Construction stalled	-	-	-	Stalled due to topographical problems
Total		700,000					

Source: Federal Ministry of Agriculture and Rural Development (2023)

Within the implementation period of the Agriculture Promotion Policy (2016–2020), progress on federal silo infrastructure showed a mixed pattern of accomplishments and constraints. Only three silos, Yola (2016), Lafia (2017), and two completed in 2019 at Lokoja and Bauchi, were finalized during the policy period, adding modestly to national storage capacity. While Yola and Lafia became operational, Lokoja remained non-operational and Bauchi suffered storm damage despite completion, limiting their intended impact. Several other large-capacity silos, particularly in conflict-affected or geographically challenging areas such as Maiduguri, Damaturu, Jalingo, and Yenagoa, remained incomplete due to insurgency, civil disturbances, or topographical obstacles.

Chart 9: Silo Complexes Operational Status and Capacity



Source: Federal Ministry of Agriculture and Rural Development (2023)

From Chart 9, more than half of federal government silos complexes were not operational with 17 out of 33 silos not functioning. This undermines the full utilisation of their storage capacity to reduce post-harvest losses and actualise food security under the Agriculture Promotion Policy (Green Alternative).

Recognising the underutilization of some of its silos, the federal government in 2017 under the Green Alternative Agriculture Promotion Policy, and with the technical support of the World Bank to bring the inherent private sector advantages into the running or management of the SGR silo complexes, commenced the process of concessioning some silos across the country, arguing that it would ensure availability of affordable grains across the country (Akinselure, 2024).

Table 13: Concessioned Silo Complexes under Public-Private Partnership (PPP)

S/N	Silo Location	Capacity (Mt)	Year Completed	Concessionaire	Source of Stored Produce	Remarks
1	Lafiagi, Kwara State	11,000	1984	Matrixville Limited	-	Not fully operational, equipment in good condition

2	Kwali, FCT	100,000	2014	Matrixville Limited	-	Not fully operational, equipment in good condition, weigh bridge and perimeter lighting repaired
3	Balasa, Kebbi State	100,000	2014	Matrixville Limited	Combination of backward integration and agents	Operational, equipment in good condition
4	Jahun, Jigawa State	25,000	1991	Matrixville Limited	Use purchasing agents who buy from farmers and local markets	Operational, equipment in good condition
5	Kaduna, Kaduna State	25,000	2006	Matrixville Limited	No stored produce	Not operational, equipment is bad, repair work ongoing
6	Makurdi, Benue State	25,000	1991	Upland Grains Production Company Ltd	Backwards integration, farmers groups and agents	Operational, capacity utilization 70.48%
7	Gombe, Gombe State	25,000	1991	Independent Grain Handling and Storage Ltd	Backwards integration, farmers' groups and agents	Fully operational, capacity utilization 100%
8	Ibadan, Oyo State	25,000	2006	Serve Well Agriculture Service Limited	Backwards integration, farmers' groups and agents	Fully operational, capacity utilization 100%, additional weighbridge built
9	Ezillo, Ebonyi State	25,000	2006	Ebony Agro	-	Not operational, equipment needs overhauling
10	Igbariam, Anambra State	25,000	2019	Coscharis Farms Limited	-	Not operational, water seepage in intake pit & central elevator pit
11	Jos, Plateau State	25,000	2006	Agro-Universal Consortium	-	Operational, equipment in bad condition
12	Ogoja, Cross River State	25,000	1991	Agro-Universal Consortium	-	Not fully operational, equipment in good condition, renovation & repairs ongoing
13	Akure, Ondo State	25,000	1991	Agro-Universal Consortium	-	Not operational, renovation ongoing

14	Sokoto, Sokoto State	25,000	2012	Agro-Universal Consortium	Rice Farmers Association of Nigeria (RIFAN)	Operational, equipment in good condition
15	Gaya, Kano State	25,000	2018	Agro-Universal Consortium	-	Not fully operational, equipment in good condition, renovation of civil structure ongoing
16	Ikenne, Ogun State	25,000	2017	Agro-Universal Consortium	-	Fully operational, 100% capacity utilization, facilities in good working condition
17	Ado Ekiti, Ekiti State	100,000	2019	Agro-Universal Consortium	-	Not operational
	Total	636,000	-	-	-	-

Source: Federal Ministry of Agriculture and Rural Development (2023)

Of the 33 federally owned silos in Nigeria, seventeen were concessioned to the private sector under a public-private partnership (PPP) arrangement (Federal Ministry of Agriculture and Rural Development, 2023). These privately managed silos are reportedly undergoing repairs or rehabilitation to improve operations, whereas the newly completed complexes in Igbariam, Anambra State, and Ikenne, Ogun State, required minimal intervention, limited to correcting installation defects. Operationally, only a few concessioned silos, including those in Gombe, Ibadan, and Ikenne, functioned at full capacity, while others operated partially or below capacity due to equipment deterioration, lack of stored produce, or ongoing maintenance, particularly in Kaduna, Ezillo, Igbariam, Akure, and Ado Ekiti. Data on silo infrastructure condition further highlights a divide between government-retained and concessioned facilities: many government-owned silos remain functional but show age-related deterioration such as leaking roofs, faulty bagging plants, damaged augers, and occasional conveyor or elevator failures, although key components like weighbridges, cleaners, and intake systems are generally in fair to good condition, necessitating targeted repairs for optimal operation.

Table 14: Condition of Infrastructure in Grain Reserve Silo Complexes Retained by Government

Silo Components	Minna	Ilesa	Gusau	Yola	Dustinma	Irrua
Weigh Bridge	Digital (Good working condition)	Digital (Good)	Digital (Good)	Digital (good working condition)	Digital (Good working condition)	Digital (Good working condition)
Control Panel	Analogue (Good condition)	Digital (Good condition)	Digital (Automated)	Digital (Automated)	Needs minor repairs	Analogue (80% automated), partially good, dead bulbs, temp indicator bad

Dry intake pit/conveyor	Good	Good	Good	Good	Conveyor chain needs repairs	Good
Wet intake pit/conveyor	Never been used (Good condition)	Good	Good	Good	Good	Good
Cleaner	Condition fairly good (75% efficiency)	Good	Fairly good (70%-80% efficiency)	Good	Good (80% efficiency)	Good
Elevators	Averagely good	Good	Generally good working conditions	6 cups missing (Elevator 2)	Good, belt cuts slightly frequently	Good
Conveyors	Good. 5 No aeration fan needs repairs	Good	Good	Conveyors 1 and 2 need repairs	Chains need rehabilitation	Good
Silo Bins	Some with leaking roof, wall corroded	Good	Good condition	Good	Good conditions	9 of the bins have roof leakages
Discharge	Good (Auger)	Good	Good	Auger	Good Auger	9 No augers have faults
Bulk Loading	Good	Good	No bulk loading bin	Good condition	Good working conditions	Good
Bagging Plant	Bad. Air hose leakages due to age, faulty stitching machine, needs recalibration	Faulty: Problems with stitch gear, electrical faults, rewiring, calibration	Good condition	Good condition	Faulty. Needs 2 industrial stitching machines	Good
Tempering Bin (TB) & Temp Probes (TP)	No TB, TP bad	Good/ functioning TP	TB condition good, TP good/ functioning	TB condition good, only 2 functioning temp probes	TB condition good, TP good	TB condition good, probe temperature bad
Hospital Bin	None	Good	Good	2 No	Good	2 No
Dryer	Not in use	Never used	Never used	Never used	Never used	Never used
Chutes	No leakages	No leakages	No leakages	No leakages	8 leaking chutes	Just rehabilitated, not test run
Capacity	25,000 MT	25,000 MT	100,000 MT	25,000 MT	25,000 MT	25,000 MT

Source: Federal Ministry of Agriculture and Rural Development (2023)

In contrast, concessioned silos tend to have better-maintained equipment and building structures, especially where operators have invested in upgrades. However, some of the concessioned are still not operational due

to ongoing renovations or equipment rehabilitation. Also, among the operational concessioned sites, performance varies. While some run efficiently at high utilization levels, others struggle with outdated or poor-condition machinery.

Table 15: Condition of Infrastructure in Concessioned Grains Reserve Infrastructure Silo Complexes

S/N	Silo Location	State	Capacity (MT)	Concessionaire	Equipment	Ancillary Building	Remarks
1	Ado-Ekiti	Ekiti State	100,000	Agro-Universal consortium	Very Good	Excellent	Not operational
2	Akure	Ondo State	25,000	Agro-Universal consortium	Good	Good	Not operational. Renovation ongoing
3	Ikenne	Ogun State	25,000	Agro-Universal consortium	Very Good	Excellent	Facilities in good working condition. Equipment being worked on for higher efficiency. Operational
4	Gaya	Kano State	25,000	Agro-Universal consortium	Good	Good	Renovation of civil structures ongoing. Not operational. Rehabilitation of equipment ongoing
5	Jos	Plateau State	25,000	Agro-Universal consortium	Bad (Needs attention)	Good	Operational, but equipment in bad condition
6	Ogoja	Cross River State	25,000	Agro-Universal consortium	Good	Good	Renovation and repair works ongoing. Not operational
7	Sokoto	Sokoto State	25,000	Agro-Universal consortium	Good	Good	Repairs and renovation ongoing
8	Kaduna	Kaduna State	25,000	Matriville consortium	Bad	Very Good	Operational, repairs of facilities ongoing
9	Kebbi	Kebbi State	25,000	Matriville consortium	Excellent	Excellent	Operational, minor repairs ongoing
10	Jahun	Jigawa State	25,000	Matriville consortium	Good	Good	Operational, repairs ongoing
11	Kwali	FCT	100,000	Matriville consortium	Good	Good	Operational, repairs on weigh bridge done. Renovation of structures ongoing

12	Lafiagi	Kwara State	11,000	Matriville consortium	Good	Good	Not fully operational, equipment in good condition
13	Ibadan	Oyo State	25,000	Flour Mills Nig Plc	Good	Good	New weigh bridge installed. Other repair works ongoing. Operational
14	Makurdi	Benue State	25,000	Flour Mills Nig Plc	Very Good	Good	Operational, capacity utilization 70.48%. Weigh bridge changed to digital
15	Gombe	Gombe State	25,000	Flour Mills Nig Plc	Good	Good	Operational. Necessary repairs and upgrades done. 100% capacity utilization guaranteed
16	Igbarian	Anambra State	25,000	Coscharis Farms Ltd	Good	Good	Stored products in warehouse
17	Ezillo	Ebonyi State	25,000	Ebonyi Agro-Industries Ltd	Bad	Good	Equipment needs overhauling. Some repairs done. Not operational

Source: Federal Ministry of Agriculture and Rural Development (2023)

Although privatization of some government silo complexes has improved infrastructure quality in many grain storage locations across Nigeria, both public and private managed silos still require consistent upkeep and financial investment to reach full operational reliability. As reported by the Federal Ministry of Agriculture and Rural Development (2023), a cost estimate of 409.632 billion naira equivalent to 904.963 million US dollars is required to execute the repairs/rehabilitation of faulty components of government-controlled silo complexes across Nigeria.

Table 16: Summary of Cost Estimates for Repairs/Rehabilitation of Faulty Components of the Silo Complexes Retained by Government

S/No	New Technological Components	Amount (N)	Amount (USD \$)
1	Cost of Installing New Technological Components in all silos	129,000,000	307,508.94
2	Dutsinma Silo Complex	50,002,000	119,194.28
3	Minna Silo Complex	68,700,000	163,766.39
4	Ilesa Silo Complex	8,000,000	19,070.32
5	Gusau Silo Complex	14,700,000	30,274.14
6	Yola Silo Complex	58,530,000	72,777.12
7	Irrua Silo Complex	80,700,000	192,371.87
	Total	409,632,000	904,963.05

Source: Federal Ministry of Agriculture and Rural Development (2023)

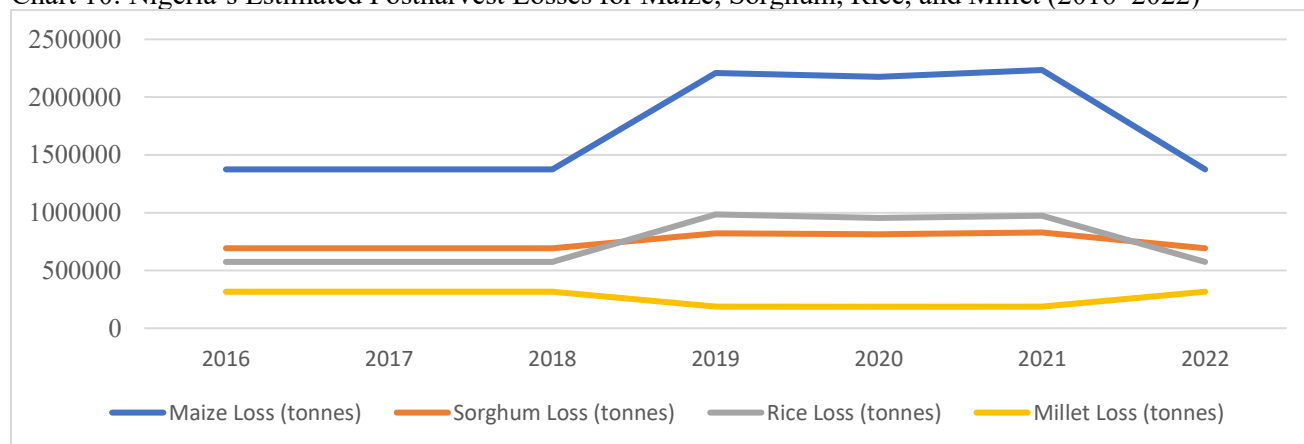
The poor state of storage infrastructure is a major driver of post-harvest food losses, especially in systems that depend heavily on aging or poorly maintained facilities. When silos, warehouses, and cold rooms lack proper sealing, ventilation, temperature control, or functional handling equipment, stored crops become vulnerable to moisture, pests, spoilage, and mechanical damage. Grains may rot from leaking roofs, fruits and vegetables deteriorate without cooling systems, and broken conveyors or dryers delay timely processing, all of which reduce both the quantity and quality of food available. As these weaknesses compound across the supply chain, farmers and distributors face higher losses, markets experience supply instability, and communities bear the economic and nutritional consequences of avoidable waste. Available data as seen in Table 4.17 and Chat 4.10, show the huge post-harvest loss Nigeria continue to incur on certain food crop because of lack of adequate storage facilities.

Table 17: Nigeria's Estimated Postharvest Losses for Maize, Sorghum, Rice, and Millet (2016–2022)

Year	Maize Loss (tonnes)	Sorghum Loss (tonnes)	Rice Loss (tonnes)	Millet Loss (tonnes)	Highest Loss %	Lowest Loss %	Costliest Loss (Crop)	Costliest Loss (USD)	Share of Ag. GDP
2016	1,374,693	692,129	574,098	316,127	17.4% (Maize)	9.5% (Millet)	Maize	> \$678 million	0.8%
2017	1,374,693	692,129	574,098	316,127	17.4% (Maize)	9.5% (Millet)	Maize	> \$679 million	0.9%
2018	1,374,693	692,129	574,098	316,127	17.4% (Maize)	9.5% (Millet)	Rice	> \$549 million	0.7%
2019	2,209,446	821,828	984,908	188,286	17.5% (Maize)	9.8% (Millet)	Rice	> \$882 million	0.9%
2020	2,174,861	812,218	954,142	186,345	17.5% (Maize)	9.8% (Millet)	Rice	> \$970 million	—
2021	2,234,843	828,876	974,257	188,573	17.5% (Maize)	9.8% (Millet)	Maize	> \$1 billion	—
2022	1,374,693	692,129	574,098	316,127	17.4% (Maize)	9.5% (Millet)	—	—	—

Source: The African Postharvest Losses Information System (APHLIS) (2025).

Chart 10: Nigeria's Estimated Postharvest Losses for Maize, Sorghum, Rice, and Millet (2016–2022)



Source: Researcher (2025)

Between 2016 and 2022, data from the African Postharvest Losses Information System (APHLIS) indicate that Nigeria consistently experienced high post-harvest losses for major staple crops, with maize recording the largest volumes each year and millet the lowest. In 2016, maize losses were estimated at 1.37 million tonnes, followed by sorghum, rice, and millet, with maize also showing the highest loss rate at 17.4 per cent and millet the lowest at 9.5 per cent. Economically, maize losses imposed the greatest burden, exceeding USD 678 million, equivalent to 0.8 per cent of agricultural GDP (APHLIS, 2025). The 2017 trend remained similar, with maize again topping both volume and economic losses at more than USD 679 million, representing 0.9 per cent of agricultural GDP. By 2018, rice had become the costliest crop, with losses surpassing USD 549 million, approximately 0.7 per cent of agricultural GDP, while 2019 saw maize losses rise to 2.2 million tonnes and rice incurring the highest financial impact at USD 882 million, about 0.9 per cent of agricultural GDP. The pattern persisted in 2020 and 2021, with maize losses peaking at over 2.23 million tonnes and economic losses exceeding USD 1 billion, before returning in 2022 to the earlier pattern of maize recording 1.37 million tonnes and millet 316,127 tonnes, with loss rates of 17.4 per cent and 9.5 per cent respectively, highlighting enduring inefficiencies in post-harvest management (APHLIS, 2025).

Post-harvest losses in vegetables further illustrate these inefficiencies. Nigeria produces approximately 1.5 million tonnes of tomatoes annually, yet nearly 0.7 million tonnes are lost, leaving a supply gap of 1.4 million tonnes relative to national demand of 2.2 million tonnes (Okojie, 2021). Similarly, the onion value chain suffers losses of up to 50 per cent of the two million metric tonnes produced annually, valued between N300 billion and N500 billion (Nwafor, 2025). Across the 2023–2024 farming season, post-harvest losses amounted to N3.5 trillion, triple the federal government’s cumulative agricultural budget of N1.13 trillion over the previous five years (Okojie & Jaiyesimi, 2024). The Minister of Agriculture and Food Security, Sen. Abubakar Kyari, estimates that spoilage and inefficiencies along the value chain cost Nigeria about \$10 billion annually (News Agency of Nigeria, 2025). Losses range from 5 to 20 per cent for grains, around 20 per cent for fish, and between 50 and 60 per cent for tubers, fruits, and vegetables, indicating the vulnerability of perishable commodities, while USAID reports that approximately half of fresh produce never reaches consumers due to post-harvest challenges (Okojie & Jaiyesimi, 2024). These figures underscore the critical need for targeted interventions to strengthen post-harvest management and enhance national food security.

CONCLUSION

The Green Alternative Agricultural Promotion Policy (APP) made notable strides in enhancing access to farm inputs and promoting investments in storage infrastructure, contributing to localized improvements in crop production and mitigating some post-harvest losses in Nigeria between 2016 and 2024. While initiatives such as the Anchor Borrowers’ Scheme and the Presidential Fertiliser Initiative expanded cultivation and strengthened food crop outputs, their impact was uneven across regions and commodities, and national self-sufficiency remained unattained. Similarly, storage infrastructure investments partially reduced post-harvest losses but were constrained by technical, financial, and operational challenges. Overall, the APP demonstrates the potential of coordinated agricultural interventions to support food security, yet persistent structural inefficiencies, underfunding, and uneven implementation highlight the need for sustained policy refinement and targeted investment to achieve comprehensive, long-term food security outcomes in Nigeria.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations were suggested.

1. To promote equitable and sustained crop productivity, it is imperative for the government to expand access to credit, high-quality seeds, and fertilisers, alongside strengthening monitoring and targeting frameworks. This could involve the development of region-specific input distribution strategies, the enhancement of agricultural extension services, and the utilisation of digital tracking systems to ensure that smallholder farmers cultivating lower-yielding crops such as maize, sorghum, and beans receive timely and appropriate support.
2. Reducing post-harvest losses necessitates substantial investment in the rehabilitation, modernisation, and expansion of storage infrastructure, including silos and warehouses, across the nation. The facilitation of public–private partnerships could ensure professional management and maintenance of these facilities. Further, the introduction of cold-chain logistics, modern drying and packaging technologies, and decentralised storage facilities in high-production regions can significantly mitigate losses of both staple and perishable commodities. Institutionalising dedicated funding for routine maintenance and technological upgrades is also critical to maintaining long-term storage efficiency and operational sustainability.

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